Inheritance and Contact in Central Kenya Bantu

A Dialectological Approach

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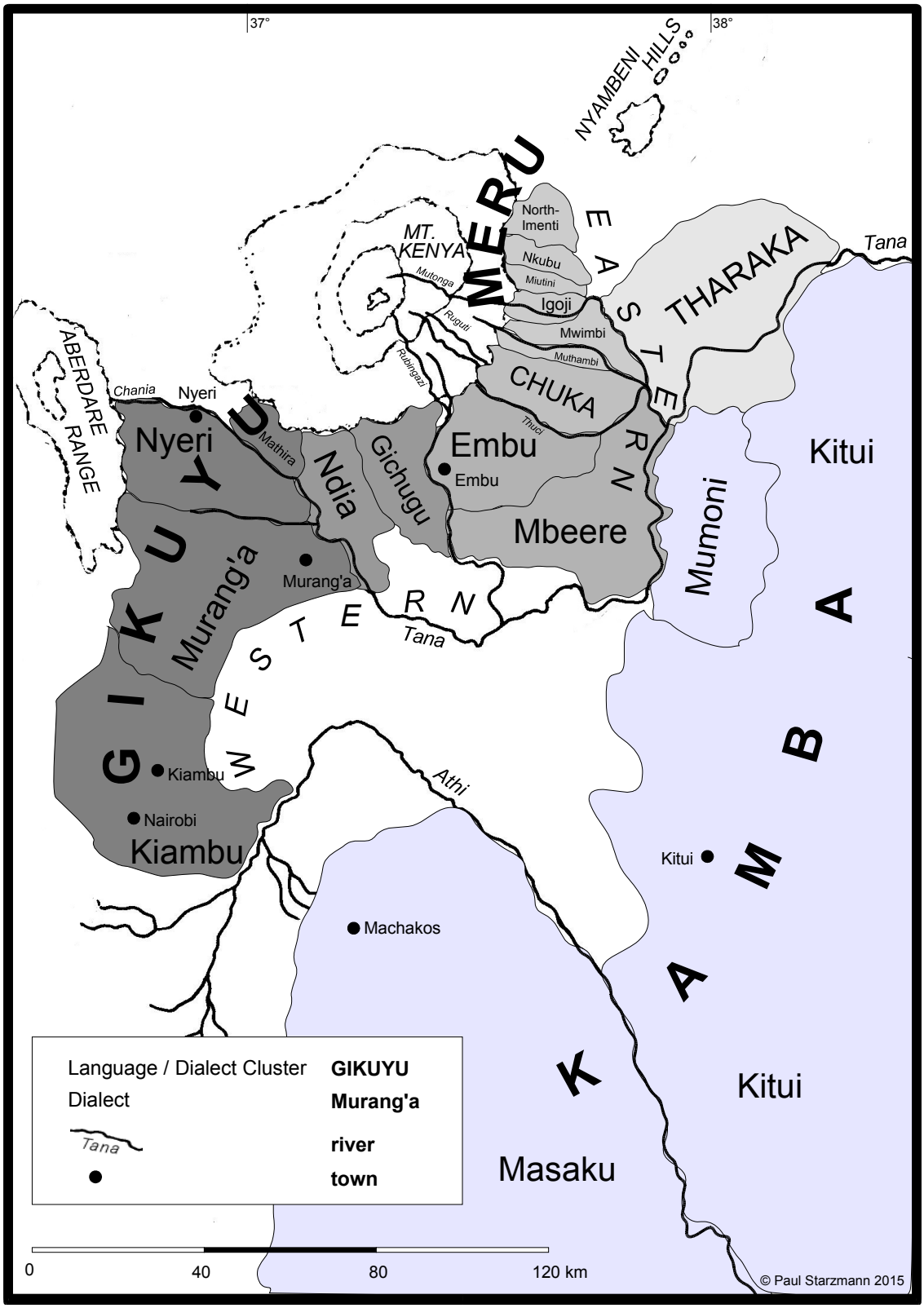


Map: The Central Kenya Bantu Languages

		Cluster / Language	Dialect	Location
CENTRAL KENYA BANTU	EASTERN	**Meru**	Imenti	1-2
			Nkubu	3-6
			Miutini	7-12
		Igoji	Igoji	13-16
		Nithi	Mwimbi	17-21
			Muthambi	22-25
		Chuka	Chuka	27-30
		Embu-Mbeere	Embu	31-34
			Mbeere	35-39
		Tharaka	West-Tharaka	40-42
			East-Tharaka	43-44
	KAMBA	**Kamba**	Masaku	45-55, 57-60, 61, 64-66
			Mumoni	75-81
			Kitui	56, 62, 63, 67-74, 82-97
	WESTERN	**Gikuyu**	Nyeri	98-100
			Kiambu	101
			Murang'a	102
			Mathira	103
			Ndia	104
			Gichugu	105

Data Survey: Clusters, languages, dialects, and locations

Contents

1. Introduction

The history of a language is linked to the history of its speakers. At a first glance, this might seem like a commonplace statement, it does, however, show that it is possible to draw conclusions on the past from the study of contemporary languages. We may even say, that the cultural processes and developments that have taken place in the past of a society become manifest in the language of the respective speech community. In other words, language may be understood as an oral and cognitive record of social history.

For example, Swahili and its closest neighbors on the East African coast belong to the Bantu family on structural and formal grounds. This indicates that the origin of these languages lies in the African interior, the home of the Bantu languages. Swahili, however, also shows a large amount of non-African vocabulary, especially loanwords from Arabic. This shows, on the other hand, that for a long time in the history of Swahili, cultural reciprocity with merchants from the Arab peninsula has played a major role in the economic development of the urban societies from Zanzibar to Lamu and beyond. The historical study of language, these examples show, always comprises an inquiry into the history of the speech communities under scrutiny.

The aim of this study is to throw some light on the history of Central Kenya from a linguistic point of view. The ultimate goal is to unravel some of the historical processes that have taken place in the area around Mount Kenya, since Bantu speakers began to enter the Kenyan Highlands about five centuries ago. The basis of this investigation is a vast amount of empirical linguistic data for all languages and dialects subsumed under the label *Central Kenya Bantu*, that are subject to a systematic comparison in an extensive dialectological survey. The prime basis of investigation is language data. Thus, this study is first and foremost a linguistic one. Only in a second step, so to speak as a by-product, the linguistic findings may be correlated with extra-linguistic evidence, such as historical accounts from oral traditions.

By stating that the social processes within a specific community of speakers are certain to leave traces in their language, it is inexplicitly claimed that languages change due to advances made in society. The reasons why languages change may be manifold: When a nation, for example, splits into two for political reasons, the respective speakers of the two newly formed groups may divergence linguistically, as language features are often tokens of self-identification on the social, political, and ethnic level (Dixon 1997: 58). In contrast, two previously unrelated languages may convergence, in some cases even to an extreme extent, when two speech communities happen to come into contact with one another and start to engage in reciprocal social relations, for example, through trade or inter-marriages[1]. In some cases, i.e. if language contact is severe enough, linguistic convergence may even result in the emergence of a completely new language. The Tanzanian language Ma'a, whose grammatical features are predominantly Bantu while almost half of its lexicon is of Southern Cushitic origin, is an example of such an extreme case of language contact – it is a mixed language with, effectively, two parents and not just one proto-language (Winford 2003: 194). In this study, both processes, divergence and convergence, are taken into account. The distinction between these two processes is a special challenge in the context of the Central Kenya Bantu languages, as they are all closely related to each other.

1 It may also happen that languages not in direct contact with each other converge, as lexical material, for example, may spread without much actual movement of many speakers. This is, for example, illustrated by a number of loanwords in Central Kenya Bantu, that are Arabic or even Indian in origin. These were mainly transmitted into the area around Mount Kenya via Swahili and not through direct contact with Arab or Indian travelers.

The claim that the linguistic and social history of a society are two sides of the same coin has been especially recognized in the study of African prehistory. As original written documents, that would be able to provide historical accounts, are scarce in most parts of the continent, historical linguistics have always been considered a promising means for the reconstruction of African history. The methods and models applied, however, have been under debate ever since early scholars embarked on their attempts of classifying the languages of Africa. Some of the scientific works that aimed at historical language classifications are considered to be of referential use only by most researchers today, who question their historical reliability for different reasons. In short, in order to shed light on the social history of any specific region from a linguistic point of view, it is key to apply a method that is able to depict the true history of a language. Only if both linguistic inheritance and contact are considered, it is possible to draw conclusions on the history of a speech community – especially in an area such as the Kenyan Highlands, where the social history has always been characterized by political and economic interdependence between the different sections of the population.

These different social groups, it is important to acknowledge, never constituted rigid units as the concept of 'tribe' suggests. This notion is rather the colonial interpretation of cultural diversity in Africa and elsewhere rather than an appropriate ethnographic description of social realities. The societies in Central Kenya were acephalous by the time the British reached Mount Kenya. The most important social and political units up to the early 20th century were locally based clans that comprised the inhabitants of a relatively contained area, such as a certain mountain ridge. The development of ethnic identities, that would embrace the whole population of a wider area, began with British colonialism by the early 1900s: In order to implement their policy of 'indirect rule', i.e. installing local dignitaries as representatives of the regime, the British set out to 'find the chief'. This was accompanied by the academic introduction of the concept of 'tribe', which denotes a group of people of common origin, who allegedly share one culture, religion, and language. From a contemporary ethnographic perspective, however, this notion is considered inadequate, as it presupposes a rather homogeneous social group (descending from one and the same ancestor). In Central Kenya, as the relevant historical accounts point out, ethnic boundaries had been rather flexible prior to the establishment of colonialism. The Embu and Mbeere, for example, are said to have multi-regional origins. Becoming a member of a certain social group by adoption and marriage used to be a well-known custom in Central Kenya. The British, however, put paid to these inter-ethnic relations by establishing their administrational units. Political affairs soon began to be oriented along 'tribal' lines, a circumstance that continued to characterize politics after independence and poses a problem to good governance in Kenya even today. Nevertheless, from a historical point of view, these ethnic boundaries are a relatively recent phenomenon. When dealing with the linguistic and social past of the Kenyan Highlands, it is, therefore, crucial to bear in mind that for most parts in the history of Central Kenya, 'tribal' identity was irrelevant in the social lives of its inhabitants. The more important units of self-identification were the immediate families, collective homesteads and the individual clans a member of a specific community may belong to.

The fact that ethnic boundaries in Central Kenya were, for the longest time, relatively flexible due to the inclusive nature of the clan-systems corresponds to our understanding of linguistic convergence. When members of different social groups, such as speakers of different language varieties, engage in trading or marriage relations, there will always be some linguistic reciprocity between them. This means that any type of social and cultural contact is inevitably linked to language or dialect contact and, consequently, linguistic convergence. The task of the historical linguist is to specify the particular kind of language contact, for example, by answering the question which variety is the donor and which is the recipient language in a specific contact situation.

I pointed out above, that written historical sources are relatively rare in precolonial Africa. This is, however, no indication that the different societies on the continent had no means of keeping track of their history prior to the introduction of script. On the contrary: Historical events, that were considered worthy of remembrance, were rather stored in the collective memory of the relevant social groups in narratives, such as myths of origin and other legends. These so-called oral traditions may be consulted as reference to the economic, cultural, social, and political history of Central Kenya. In the beginning of African Studies, many scholars tended to belittle these narratives, as they were considered to be unreliable statements of allegedly 'primitive' people. Others have always recognized the historical value of these legends, which are, indeed, able to provide a fair amount of insight into the history of African cultures. In this study, the linguistic findings are corroborated by referring to these oral traditions, since other extra-linguistic material, such as conclusive archaeological work, is virtually non-existent for Central Kenya.

1.1 Aims and Objectives of this Study

The overall objective of the historical investigation in this study is to reveal some of the language history in Central Kenya and, in a second step, correlate the linguistic findings with evidence from the social and political history of the Kenyan Highlands. The linguistic data is reviewed in two steps: First, the data is analyzed quantitatively, i.e. the synchronic affiliations between the Bantu languages of Central Kenya are assessed (dialectological survey). Second, the qualitative analysis aims at determining whether the individual affiliations are mainly characterized by linguistic inheritance or diffusion. In a final step, the outcome of the linguistic investigation is correlated to the historical accounts from the local oral traditions.

1.1.1 The Scientific Questions under Scrutiny

This study is divided into three steps, i.e. (1.) the quantitative and (2.) qualitative linguistic analysis as well as (3.) the correlation between linguistic findings and extra-linguistic evidence. Accordingly, there are three major questions to be resolved in this study.
The first procedural step, the quantitative language analysis, aims at answering the question to what extent the different languages and dialects share their linguistic inventory. In other words, it is to be assessed how similar – or distant – they are to each other on the phonological and lexical levels. The domain of morphology is not considered in this study as an analytic unit of its own due to technical reasons (see section 1.1.2). Dialectal proximity is investigated by statistical means, i.e. by applying the method of dialectometry, which allows us to systematically compare the phonological and lexical inventories of all varieties under scrutiny. It is important to note that this procedure yields merely synchronic results and provides no information on the historical background or social conditions that resulted in the specific statistical outcome.
The diachronic relations are, in turn, assessed by qualitative languages analysis. In this second step, it is investigated why some of the languages and dialects are especially close to one another, while they are more distant in relation to other varieties. The congruence of any two language varieties may be explained by a number of factors: Universal tendencies, chance, diffusion, genetic retention, and parallel or convergent development (Aikhenvald and Dixon 2001: 1 ff.). The former two explanations, language universals and chance, seem to be self-explanatory. For example, in every human language there exists a marker of clausal

negation, but not every language has a strategy for negating a predicate argument. Some forms, such as onomatopoetic verbs with the meaning 'to blow', moreover, seem to be almost universal, as many languages dispose of such iconic lexemes (ibid.). Universal tendencies are also formulated by natural phonology, which describes, for example, how voiceless segments are generally weakened (voiced) for the ease of articulation, cross-linguistically exhibited, for instance, in children's speech (Stampe 1973, Mayerthaler 1982).

In some cases, the factor of chance seems to be the only reasonable explanation when it comes to specific instances of linguistic congruence. In Gikuyu, for example, the concept of *broom* is expressed by the form *kɪ.ɦaːtɔ*. In the Munyo dialect of the Cushitic language Oromo, a good 300 km to the west of the Gikuyu area, this concept is denoted by the word *hár-tó* (Heine 1980: 165). The similarity between these two forms seems to be due to chance. Not only are Gikuyu and Oromo members of two different language families, but they are situated in considerable geographic distance to each other – thus, no plausible contact scenario exists. Moreover, the Gikuyu form seems to be cognate to similar words, such as *kɪ.vaːti* and *kɪ.ɦaːti*, in the neighboring Bantu varieties of Embu and Igoji. Consequently, diffusion may be safely ruled out in this case, rendering chance the only plausible explanation for the relative similarity between Gikuyu and Munyo in regard to the concept of *broom*.

The principal task in this study is to distinguish genetically inherited from diffused linguistic material. As all of the Central Kenya Bantu languages are closely related to each other, this is not an easy task. The procedural details of this qualitative analysis, i.e. how the two types of material may be discriminated, are laid out in sections 3.1.2 and 3.2.2. In general, a genetic relationship between two languages may be assumed if the following conditions are met: "the forms and their meanings must be either identical or else easily relatable, through established rules for phonological change" (Aikhenvald and Dixon 2001: 3). In contrast, diffusion of linguistic material is the case, if congruence between varieties is attested in a specific instance, but no evidence of shared innovations in the above sense may be found. In most general terms, aberrancies in shape and structure as well as marked geographic distribution may indicate that a specific variant is a borrowed feature.

There are several factors, both linguistic and extra-linguistic, that influence the outcome of a specific contact situation and the diffusion of linguistic features respectively. From an extra-linguistic perspective, certain social conditions need to be met in order for the transfer of features to take place. Language contact is determined by a number of sociocultural factors, such as the demographics of the populations in contact, the general social settings as well as the ideologies and attitudes that play a role in the linguistic choices made by speakers in contact (Winford 2003: 25). Thomason (2010: 38) refers to Milroy's (1987) concept of social networks as being most relevant in this context: "the idea is that variants spread through networks, and close-knit social networks characterized by intense contact among the participants can facilitate the spread of innovations."

In Central Kenya, numerous closely-knit networks have existed between the different communities of the highlands, that seem to have facilitated the spread of linguistic innovations across language and dialect boundaries through intense contact. An overview of the social settings in Central Kenya is provided in section 1.2.2 on the extra-linguistic background.

There is the question whether the diffusion of linguistic features is preconditioned by the languages in contact themselves, more or less regardless of the exact nature of the relevant social settings. In the past decades, linguists have increasingly come to agree that language contact may be the cause of a variety of linguistic changes (Thomason 2010: 31). It has become a general understanding that borrowing may be substantial if language contact is severe enough, or – as Thomason (2010: 41) puts it – "under cirucmstances of intense contact, any linguistic feature can be transferred to any other language." This means that

anything from phonemes to lexemes, grammatical categories, construction types as well as grammatical forms may diffuse from one language to another (Dixon 1997: 19 ff.). This fact renders identifying diffused features – as opposed to inherited ones – relatively difficult.
Winford (2010) and Thomason (2010) provide a number of guidelines that help assessing whether a certain change is motivated internally or externally. Both authors use the concept of typological distance to assess the plausibility of contact explanations, i.e. making predictions about externally motivated change: "Where typological distance is small, linguistic subsystems in which contact-induced change is in general rare may undergo contact-induced change" (Thomason 2010: 40). In the case of the Bantu languages, this observation highlights the claim that any linguistic features may be transferred if the conditions are right. The claim, however, also implies that there are certain linguistic constraints that govern diffusion, such as large typological distance inhibiting the borrowing of even open-class items (Winford 2010: 178).
According to Winford (2010: 175), there are strict limitations on what can be transferred, and under what conditions. Structural elements, for example, mostly come along with lexical borrowing, i.e. structural transfer is mediated by lexical diffusion. An example is the distinction between /s/ and /z/ in English, which is the result of heavy borrowing of French words showing the voiced variant of the pair /s/ and /z/. No new sounds, however, have been introduced into English in this case. The borrowing from French simply resulted in a restructuring of the English phoneme system: The introduction of French loans, such as *zeal*, for example, caused the phonemization of English [z], originally an allophone of /s/. Winford (2010: 176) draws the following conclusion: "borrowing of phonological elements is extremely rare and, when it occurs, it tends to be mediated by lexical borrowing." This particular claim means that whenever phonological congruence between two varieties of Central Kenya Bantu can be observed, we may only assume that diffusion is the case, if this assumption can be backed up by evidence in the form of evidently diffused lexical items.
In the data of this study, diffused lexical items often show formal irregularities. In general, loanwords may be relatively easy to identify, i.e. in Thomason's (2010: 34) words, they "will declare their origin" on the basis of their peculiar shape. In regard to the diffusion of lexical items, there are, however, certain hierarchies in respect to their borrowability (Muysken 1981, Haspelmath & Tadmor 2009), that may enable us to assess the plausibility of certain contact explanations. Nouns, for example, are much more likely to be borrowed than verbs. Core vocabulary is less likely to be borrowed than cultural vocabulary.
It is important to note that any (contact) explanation in historical linguistics is first and foremost a question of tendencies and probability. In short, the claim that any feature may be transferred to any other language holds true. However, under specific social and linguistic circumstances, there are various constraints, both linguistic and extra-linguistic, to be considered when assessing whether a specific case of congruence may plausibly be explained by inheritance or diffusion.
Next to inheritance and diffusion, Aikhenvald and Dixon (ibid.) list another factor, parallel or convergent development, which is explained as an instance, in which "two languages (often, but not always, two languages of the same genetic group) may share an inner dynamic that propels them to change, independently, in the same way" (Dixon 2001: 66). In the context of Central Kenya Bantu, this kind of observation is most obvious in the merger or overlapping of recurrent sound correspondences (see section 3.1.2).
After resolving the issue of inheritance versus diffusion for the language data at hand, the third question of this study may be answered: How do the linguistic findings relate to the social history of Central Kenya? In general, inheritance and diffusion each point to a different kind of social setting. In the former case, we may assume that the speakers of two varieties that share a large amount of inherited material also share a long period of common history. As

the precolonial history of the Kenyan Highlands is mainly a history of migration and population expansion, a strong genetic relationship between two varieties may suggest a common origin of the ancestral speakers of today's languages. In other words, the relevant people may be assumed to have taken similar migration routes towards Mount Kenya. If the congruence between two varieties is, in contrast, mainly due to linguistic diffusion, language contact has caused convergence between these languages. In social terms, linguistic convergence indicates that the respective speech communities have come into contact (relatively recently) and had previously been separate from each other. In this study, I show that the correlation between the linguistic findings and the extra-linguistic evidence reveals a number of socio-historical facts from trade exchange to marriage relationships as well as clues on bilingualism and social status in the Kenyan Highlands.

1.1.2 The Outline of this Study

The extra-linguistic evidence is treated in a detailed manner in section 1.2.2. In the literature on Central Kenya Bantu, many scholars make reference to the above mentioned oral traditions. However, a critical look at these traditions and the scientific treatment thereof is only rarely provided. In this study, the relevant extra-linguistic sources are subject to a thorough review, and the question of reliability is addressed. In section 1.2.1, I discuss the state of the arts in the linguistic study of Central Kenya Bantu. Section 1.2.2 provides a concise overview of the history of Central Kenya from the first immigration of Bantu speakers about five centuries ago to the early years of independence in the second half of the 20th century.

Section 1.3 provides an overview of the linguistic data. The data were elicited in a number of field campaigns from the 1960s onwards by means of Möhlig's 600-wordlist in a total of 125 locations throughout all of Central Kenya. The lexical data consist of 496 entries. The data on the morpheme systems of Central Kenya Bantu have been excluded from this study. Morphological considerations are, however, taken into account in the statistical comparison of the lexical data.

The methods applied in this study are discussed in chapter 2. In general, I follow a dialectological approach, which provides a number of advantages for the systematic study of linguistic variation across a geographic space. The quantitative analysis is conducted by applying the method of dialectometry, a dialectological means of statistically assessing the affiliations between related languages and dialects respectively. In chapter 2, I explain the procedural principles of this method and discuss a number of theoretical aspects to be noted in the investigation of dialectal variation.

The application of these methods is shown in chapter 3. First, the domain of phonology is treated quantitatively (section 3.1.1), i.e. the phoneme systems of all Central Kenya Bantu languages are compared statistically in regard to phonetic and phonological variation. The basis of this procedure are recurrent sound correspondences. This section is followed by a qualitative analysis (section 3.1.2), whose aim it is to distinguish genetic inheritance from language contact. The same course of action is carried out for the lexical data, i.e. the data are compared statistically in a first step (section 3.2.1). In a second step, inherited and diffused material is distinguished (section 3.2.2).

Morphological variation is treated as a part of lexical variation in this study. In other words, the respective morpheme systems in Central Kenya Bantu as their own sub-level of comparative analysis are excluded from this study. Even though morphological features are generally considered most promising in language classification[2] (e.g. Greenberg 1966), they

2 In this study, accordingly, morphological divergence of lexical items is viewed as more indicative of

cannot be taken into account in this study for the lack of sufficient data. From a quantitative point of view, there exists enough data on the nominal markers, adjective markers, subject markers, object markers, and pronominal markers. The dialectometrical analysis of these paradigms renders a specific picture which – more or less – resembles the outcomes of the phonological and lexical analysis. However, from a qualitative point of view, only the nominal markers could have been subject to an additional analysis, that would allow us to draw conclusions on the diachrony of the relevant languages. As the data base consists only of lexemes and not phrases or even sentences, adjective and object markers, for example, can not be analyzed qualitatively. The only domain that may be subject to qualitative analysis in regard to morphology is, consequently, the domain of nominal markers.

In this regard, however, the Central Kenya Bantu languages show very little variation. Only four out of 17 noun classes show variation that is not based on phonological differences, i.e. class 5, class 8, class 16, and class 17 (see Möhlig 1974a for morphological isoglosses in the Eastern Kirinyaga dialects). Consequently, only four classes in the nominal system may be analyzed – the remaining classes are non-diagnostic due to the lack of variation. I point out in section 3.2.2 on the qualitative lexical analysis that less than a dozen comparative series seems to yield unfeasible results.

The attempt of qualitatively analyzing the data on noun markers poses yet another problem: In general, the qualitative analysis is based on the correlation between the shape of a form and its semantic content. This means that the phonological data, for example, are analyzed qualitatively by considering the lexical meanings that establish a specific series of recurrent correspondence. In the case of morphology, these would be items that belong to either of the classes 5, 8, 16, and 17. Class 5, however, seems to be non-diagnostic, as the variation between the nominal markers */i-/*, */ri-/*, */ɪ-/*, and */rɪ-/* is rather low: A difference in vowel quality may be due to either divergence or convergence, the same holds for the variation between /r/ and /Ø/. The remaining classes 8, 16, and 17 show considerable variation in Central Kenya Bantu. As only singular forms are elicited in the lexical data base, however, the plural class 8 does not occur in the lexical data base. Consequently, only class 16 and class 17 may be analyzed qualitatively. Both are, however, attested by no more than a handful of lexical entries.

In short, due to the specific layout of the nominal morpheme systems in Central Kenya Bantu, the dialectological approach is not able to yield feasible results for this domain in terms of a historical interpretation of the statistical outcome. However, morphological differences are not completely disregarded, as they are taken into account in the lexical analysis (see 3.2.1).

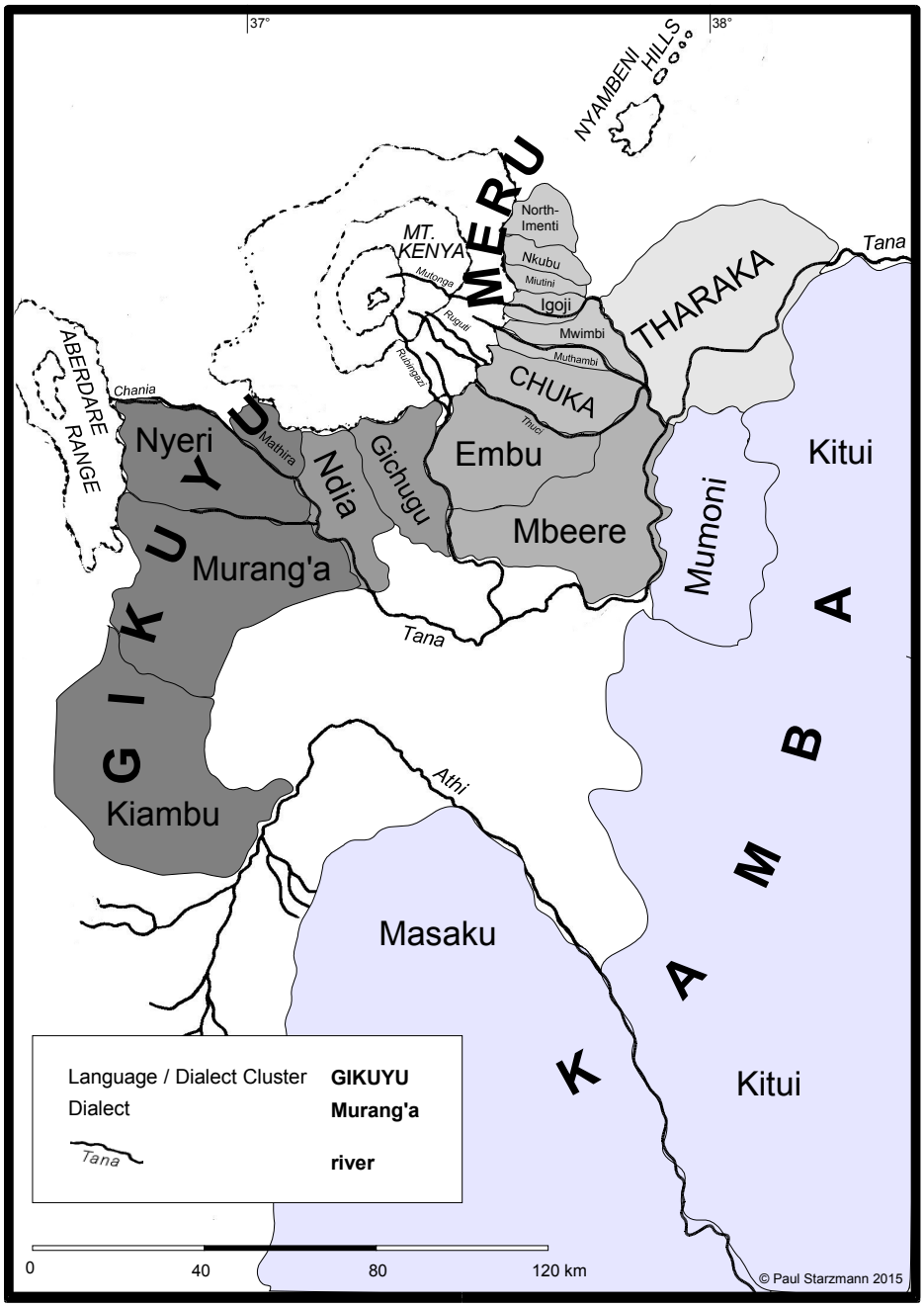
The distinction between inherited and diffused material in 3.1 and 3.2 enables us to classify both types of items from a formal, distributional, and semantic perspective. This is carried out in the two sections 3.3 and 3.4. The classification along these lines is not only intended as a summary of the linguistic results, but is also necessary in order to correlate the linguistic findings with the extra-linguistic evidence.

This correlation is discussed in the final chapter 4, in which I present a number of conclusions on the social history of Central Kenya Bantu as it is reflected in the linguistic data. The correlation between linguistic findings and extra-linguistic evidence enables us to deduct claims on the migration of the early Bantu speakers, on social interdependence within the Kenyan Highlands and without, as well as on the impact of colonialism on Central Kenya.

relatedness than phonological divergence. Consequently, morphological divergence is rated higher in terms of dialectometrical proximity (see 3.2.1).

1.2 The Object of Investigation: The Bantu Languages of Central Kenya

The Central Kenya Bantu languages are located in the central highlands of Kenya, on the slopes of Mount Kenya as well as in the lower plains in the south and east of the mountain. The language territory covers an area of over 26,000 km^2, the approximate size of countries such as Ruanda or Macedonia. The languages are spoken by approximately 14 million people (Lewis et al. 2014). Thus, almost a third of the Kenyan population speaks at least one of the varieties subsumed under the label Central Kenya Bantu. The following map provides an overview of the language area:



Map 1: The Central Kenya Bantu Languages

When referring to the Central Kenya Bantu languages, the local population and administration, e.g. officials with the Kenyan Institute of Education, commonly consider the group to consist of six languages. The following table provides an overview of these six major languages based on the social and demographic divisions:

Language	Estimated number of speakers
Gikuyu	7 Million
Kamba	4 Million
Meru	2 Million
Embu-Mbeere	500,000
Tharaka	140,000
Chuka	70,000

Table 1:The Central Kenya Bantu languages and their respective number of speakers

None of the varieties in table 1 is an official language in the Republic of Kenya; the larger languages, Gikuyu, Kamba, Embu-Mbeere, and Meru, are, however, taught in elementary school. Due to population growth in the Kenyan Highlands, all of these languages can be considered to be rapidly expanding in regard to the amount of speakers. Nowadays, the linguae francae Swahili and English are also widely used in Central Kenya, and substantial parts of the population are multilingual. In certain contexts, for example in administration and higher education, Swahili and English have grown to become the most commonly used languages.

Lewis et al. (2014) divide the group, called *Kikuyu-Kamba*, into a total of eight distinct languages. The following table provides an overview of this (ethnologue) classification as opposed to the popular view:

Ethnologue's term	Dialects in ethnologue	Popular view
Gikuyu [kik] (E.51)	Gichugu, Mathira, Ndia, North-Murang'a & Nyeri, South-Murang'a & Kiambu	all considered to be Gikuyu
Kiembu [ebu] (E.52)	Embu, Mbeere	both dialects subsumed under the name Kiembu
Kimîîru [mer] (E.53)	Igembe, Igoji, Imenti, Meru, Miutini, Tigania	all considered to be Kimeru
Mwimbi-Muthambi [mws] (E.531)	Mwimbi, Muthambi	subsumed under Kimeru
Kitharaka [thk] (E.54)	Gatue, Igoki, Ntugi, Thagicu	recognized as a distinct language
Gichuka [cuh] (E.541)	-	recognized as a distinct language
Kamba [kam] (E.55)	Masaku, Mumoni, North Kitui, South Kitui	all considered to be Kikamba
Dhaiso [dhs] (E.56)	n.a.	not considered to be a Kenyan language

Table 2: Ethnologue classification of Central Kenya Bantu and the popular view (Lewis et al. 2014)

Table 2 shows that, except for Dhaiso and Mwimbi-Muthambi, the ethnologue classification agrees with the view proposed by the local administration. Dhaiso is not considered a Kenyan language, as it is spoken in Tanzania. For reasons explained in section 1.2.1 below, Dhaiso is

excluded from this study. Mwimbi and Muthambi are nowadays most commonly subsumed under the umbrella term Meru, both by some linguists as well as laymen (i.e. the two varieties are, for example, not recognized as a distinct language in terms of vernacular education). Based on Heine and Möhlig (1980), in this study, Central Kenya Bantu is considered to consist of a total of eight dialect clusters, whose divisions differ slightly from the ones in table 2 above and are listed in figure 1 below (see section 1.2.1).

1.2.1 The Study and Classification of the Central Kenya Bantu Languages

The languages under scrutiny in this study were among the first African languages to ever attract the attention of European colonialists, missionaries, and researchers. For this reason, there is a long tradition of scholarly interest in the Central Kenya Bantu languages, that goes back to the very beginning of modern African Studies, i.e. the time the European set out to conquest East Africa in the 19th century. It is no coincidence that languages such as Gikuyu and Kamba were of major interest to the Europeans, as their territories in the west and south of Mount Kenya had been among the first areas in East Africa to be accessed and exploited by the British. The first European to ever set eyes on Mount Kenya in 1849, the German missionary Johann Ludwig Krapf, for example, was one of the first missionaries to engage in the study of African linguistics by publishing vocabularies of Kenyan languages, such as Swahili or Kamba (Krapf 1850). With the intensification of British colonial efforts in East Africa by the turn of the century, a number of international missionaries arrived in the region, successively setting up stations in the Kenyan hinterland. They conducted basic linguistic research among the different communities of Central Kenya aiming at winning over the local population by providing the Holy Bible in vernacular languages. Some influential publications, such as grammars and dictionaries, date back from this early period of missionary work, e.g. Hinde (1904) on Kamba and Gikuyu, Barlow (1914) on Gikuyu, and Lindblom (1914, 1926) on Tharaka and Kamba.

After colonial rule had been fully established in Kenya in the first decade of the 20th century, missionary and scholarly activities in the area continued to thrive. Not only did European settlers find the Kenyan Highlands an attractive place to establish their plantations, but the area also gained importance to colonial interest due to the set up of the Mombasa-Uganda railway (1896-1901), that runs through the western highlands connecting the Kenyan coast with the Nyanza region. Encouraged by the British government, missionaries and academic researchers alike concentrated their activities on Central Kenya in the following decades. This interest in the Kenyan Highlands as a research area continued after the Second World War. From this period date a number of publications that can even today be seen as authoritative in the study of the Kenyan Bantu languages, e.g. Armstrong (1940), Gecaga and Kirkaldy-Willis (1953), and Benson (1964) on Gikuyu, or Whiteley and Muli (1962) on Kamba. Until today, the Bantu languages of Central Kenya continue to draw the attention of domestic and international scholars, such as Mugane (1997) on Gikuyu or Kioko (2005) on Kamba. Most of the recent publications are mainly concerned with individual languages and detailed aspects. Gikuyu continues to be one of the most well researched African languages. The smaller languages, such as Tharaka or the Meru dialects, have only recently come into the focus of intensive scholarly treatment, for example by wa Mberia (2002) or Kanana (2011). Maho (2008) provides a concise list of the relevant literature on Central Kenya Bantu.

In contrast to the vast amount of works on the individual Bantu languages of Central Kenya, there is less material available that deals with the linguistic history and the classification of these languages – especially among the early publications. As most missionaries had little or no linguistic training, and their research was mainly motivated by the prospect of translating

the Bible, they had little interest in questions concerning the linguistic affiliations between the languages they dealt with. Arthur Barlow, a Scottish missionary in Kenya at the beginning of the 20th century, may be considered an exception: As Bennett (1974) points out, Barlow's unpublished "Thagicu manuscript", a collection of lexical items, probably provides the earliest dialectological contribution to the study of the languages around Mount Kenya. The heydays of classificatory research of Central Kenya Bantu, however, started, much later – in the mid-20th century.

Even though the classification of African languages has been a much debated topic ever since the early years of African linguistics (e.g. Meinhof 1906, Westermann 1927), it was not until the mid-20th century that Central Kenya Bantu came into the focus of classificatory language research. Following Greenberg's (1955) endeavor to provide a general classification of the African languages, a number of scholars devoted themselves to the comparative study of Bantu in the second half of the 20th century. Particular mention should be made of Bryan's (1959) attempt of classifying the Bantu languages and, of course, Guthrie's (1967-71) highly influential compendium *Comparative Bantu*. In the latter work, the Central Kenya Bantu languages are classified as a unified subgroup of Guthrie's zone E, labeled E.50, consisting of Gikuyu, Embu, Meru, Tharaka, Kamba and Dhaisu as its prime members. From a contemporary perspective, this classification is, however, a merely referential one and, due to methodological shortcomings, not able to bear up to today's standards in historical linguistics[3]. Nevertheless, Guthrie's nomenclature and his division of Bantu zones continues to be in wide usage among Bantuists. Moreover, his compendium can still provide reliable information on the distribution of lexical forms in the Bantu language family.

Apart from the above mentioned general works, there exist a number of publications dealing with the classification of Central Kenya Bantu on a more local scale. In his habilitation thesis, Möhlig (1974a) provides a full dialectological survey of the Eastern Kirinyaga dialects, i.e. the varieties spoken between Embu and Imenti on the southern and eastern slopes of Mount Kenya. Möhlig (1977) proposes a historical classification of Savannah Bantu, based on the sound systems of the relevant varieties by taking vertical and horizontal language affiliations into account. In Hinnebusch et al. (1981), in contrast, a classic genealogical classification of Eastern Bantu is presented. Mutahi (1983), again, follows the principles of genealogical language classification when dealing with the sound change in the dialects of southern Mount Kenya, i.e. Gikuyu, Ndia, Gichugu, Embu, and Mbeere. Finally, in a large-scale language survey of Kenya, Heine and Möhlig (1980) provide a dialectological classification of Central Kenya Bantu, which is used as a working definition in this study.

The basis of this classification is the parameter of *dialectal proximity*, that is based on "linguistic facts which are shared by two neighboring idioms" and to be distinguished from parameters such as *linguistic similarity* or *historical identity* (Heine and Möhlig 1980: 13). The linguistic facts, i.e. phonological, lexical, and morphological features, are weighed in two respects: First, the degree of similarity between two varieties is assessed, i.e. whether the linguistic features shared are identical or rather *partially* divergent forms. Second, the distribution of shared features is taken into account, i.e. if two varieties share a specific linguistic fact, which is rare or absent in other dialects, it is considered indicative of an especially low dialectal distance between the respective varieties (ibid.).

3 See Möhlig (1974b, 1979) for a discussion of Guthrie's two-stage method and the principle of test languages.

WESTERN	EMBU/ MBEERE	CHUKA	MERU	IGOJI	NITHI	THARAKA	KAMBA
GIKUYU: Kiambu Murang'a Nyeri Mathira	Ndia Gichugu		N-Imenti Nkubu Miutini		Mwimbi Muthambi	Tharaka-East Tharaka-West	Masaku Kitui Mumoni

Figure 1: Classification of Central Kenya Bantu (based on Heine and Möhlig 1980: 14)

Depending on the aim of the relevant classification (e.g. historical or referential) and the chosen methods, the results of the various classification attempts have yielded different results in regard to subgrouping and the amount of member languages of a subgroup. Moreover, there are certain theoretical implications inherent to each method of language classification. The genealogical approach, followed, for example, by Nurse (1979), assumes that the Central Kenya Bantu languages are the descendants of one ancestral language often named *Proto-Thagicu*. Bryan (1959), Guthrie (1967-71), and Nurse (1979) consider the language of Dhaisu to be a member of such an alleged genetic group. Dhaisu, often also called Segeju, is, however, spoken in the Usambara mountains of Tanzania and, consequently, from a synchronic-dialectological perspective not a member of Central Kenya Bantu. For the lack of data and the fact that this study strictly follows dialectological principles (allowing no linguistic no man's land, see section 2.1.6), the Tanzanian language Dhaisu is excluded from the scope of this study. Dhaisu has been classified as a Central Kenya Bantu language by a variety of scholars. However, the inclusion of Dhaisu into this subgroup needs to be considered questionable.

The same holds true for many of the features that some of these classifications are based on. For example, Nurse (1982: 183) argues that all the varieties in the vicinity of Mount Kenya show an intervocalic weakening of Proto-Bantu (henceforth PB) voiced segments, which is also attested for Dhaisu. He further considers the retention of PB *t and *k both in Central Kenya Bantu and in Dhaisu as proof of a strong genetic relationship between these varieties (Nurse 1982: 204). In general, these observations made by Nurse seem to be accurate. However, the weakening of PB voiced segments as well as the retention of PB *t and *k are both widely attested in East African Bantu languages – rendering the diagnostic value of these features to be rather low. Consequently, Dhaisu seems to be no more closely related to any Central Kenya Bantu language than, for example, the Chagga dialects of Mount Kilimanjaro.

Möhlig (1978, 1980) points out that a common ancestry of the Central Kenya Bantu languages is unlikely, which is also confirmed by oral traditions (see also section 1.2.2). The term *Thagicu* is, nevertheless, used in various works to describe an alleged common ancestral language of Central Kenya Bantu. According to Jungraithmayr and Möhlig (1983: 241), this term originally denotes a historical group of pastoralists, the original Segeju, that migrated from the coast along the Tana river into Central Kenya in the 16th century. In the vicinity of Mount Kenya, some of these migrants settled down, possibly merging with the prior population of the region, probably in the Tharaka area[4]. Others moved south from the Kenyan Highlands, eventually settling in the eastern Usambara region of Tanzania (ibid.). Viewed against this background, it becomes evident why today's speakers of the Central Kenya Bantu

4 The term *Thagicu* is used by Lewis et al. (2014) as the name of one dialect of Tharaka (cf. table 2 above). The naming might originate from the time when the original Segeju passed through the area now inhabited by the Tharaka.

languages object to *Thagicu* as a cover term for the entire language group (Hinnebusch et al. 1981: 237).
The term *Kikuyu Group* (Bryan 1959) seems to be misleading as well, as it neglects to show that many more varieties than only Gikuyu are involved. The name *Kikuyu Kamba Group* (Guthrie 1967-71, Lewis et al. 2014) may also be considered a questionable term. Not only may it mislead the reader to think that only Gikuyu and Kamba are subsumed under this label, but as the dialectometrical calculations in this study show (see chapters 3.1.1 and 3.2.1), Gikuyu and Kamba are rather distant from each other linguistically. *Central Kenya Bantu*, therefore, seems to be the best choice in finding an appropriate label for the entire cluster from Gikuyu in the west to Meru in the north and Kamba in the east and south of the Kenyan Highlands.
The Gikuyu dialects Kiambu, Murang'a, Nyeri, and Mathira, called "Gikuyu proper" by Heine and Möhlig (1980: 14), are located in the west of the language area. Next to this dialect cluster lie the two varieties Ndia and Gichugu, that are generally interintelligible with the Gikuyu dialects (Jungraithmayr and Möhlig 1983: 93). Embu and Mbeere, dialects of one cluster, separate the western dialects from Chuka, the smallest language in terms of speakers and most central one in terms of its geographic position within the foothills of Mount Kenya.
On the eastern slopes of Mount Kenya, there exist a number of dialects generally subsumed under the term *Meru.* In the literature, this name is often used as a cover term for all dialects from Muthambi to Imenti and sometimes even Tharaka. However, the name is misleading as it may entice the reader to think that the term *Meru* is entirely based on linguistic and even ethnographic considerations (see also section 1.2.2). The name was used as an umbrella term by the British to subsume all the different sections of population in the eastern foothills of Mount Kenya (Kanana 2011: 301). Heine and Möhlig (1980: 14) embrace the following varieties under the term *Meru*: Imenti, Nkubu, Miutini as well as Igembe and Tigania (the latter two are located on Nyambeni Range and are not dealt with in this study for the lack of data). Heine and Möhlig also exclude Mwimbi and Muthambi (subsumed under Nithi) and Igoji from the Meru cluster. The name *Meru*, according to Heine and Möhlig (1980: 28), is dialectologically only appropriate for the most northern part of the area, i.e. Imenti, Nkubu, and Miutini.
The classification by Heine and Möhlig (1980) is based on the parameter of *dialectal proximity*, i.e. on the relative similarity and the distribution of shared phonological, lexical, and morphological features. Mwimbi-Muthambi and Igoji, according to the results presented by Heine and Möhlig (1980), are not linguistically close enough to their northern neighbors to qualify as part of the Meru cluster. I show below in section 3.2.2 that in regard to the lexicon, for example, Mwimbi-Muthambi and Igoji may be quite close to their northern neighbors in some semantic domains while diverging substantially in respect to others. For the sake of convenience, the classification by Heine and Möhlig (1980), as presented in figure 1 above, is used as a working definition in this study. Mwimbi-Muthambi, also known as Nithi, and the variety of Igoji are both considered to be clusters of their own. Tharaka, divided into an eastern and a western dialect in this study, is considered a language of its own. Finally, Kamba, the language covering the largest area in Central Kenya, can be divided geographically into the dialects of Masaku, Kitui, as well as Mumoni (ibid.). In short, as a working definition, Central Kenya Bantu is defined as a group of eight clusters each showing a varying amount of dialects (cf. figure 1 above): Western, Embu-Mbeere, Chuka, Meru, Igoji, Nithi, Tharaka, and Kamba.
It is important to note that this classification of the Central Kenya Bantu languages, as proposed by Heine and Möhlig (1980), represents a merely synchronic picture of the languages and dialects around Mount Kenya. It does not provide any information on how this particular division into languages and dialects has come into being, i.e. it makes no historical

claims. In general, as mentioned in section 1.1.1, similarities between language varieties may – apart from universal tendencies and chance – be due to either genetic inheritance or language contact. The aim of this study is to distinguish the latter from the former and provide a classification of the different divergence and convergence processes that shaped the Central Kenya Bantu languages. In order to be able to shed light on the history of a language, one must consider the history of its speakers, as it is done in the following section 1.2.2.

1.2.2 The Extra-Linguistic Background

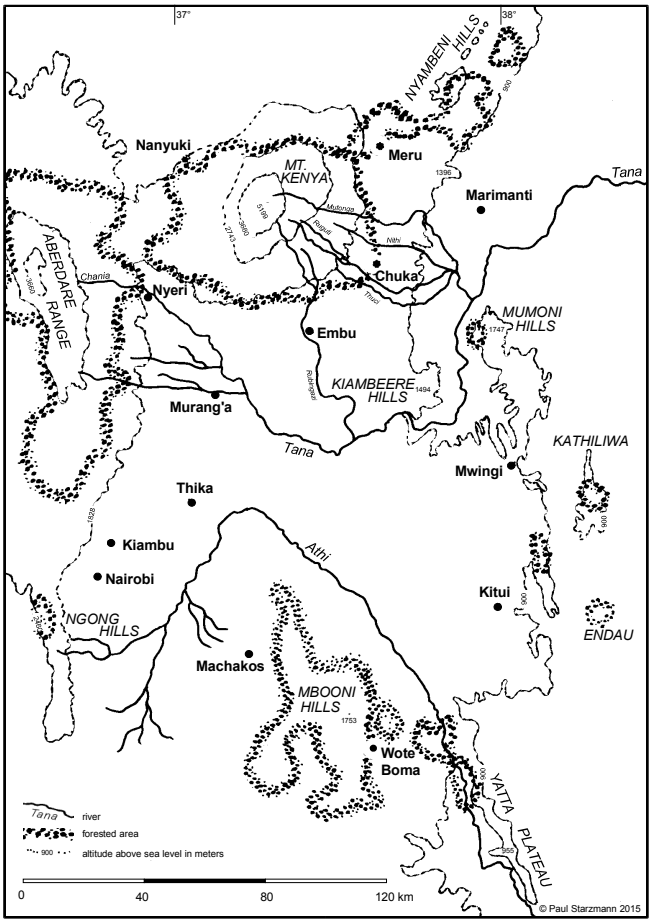
Any language contact situation can only be fully understood if the extra-linguistic factors involved are considered (Weinreich 1953: 3). The same holds for linguistic history in general, i.e. both linguistic convergence and divergence are the linguistic manifestations of a specific social history of the relevant speech communities. This section discusses the extra-linguistic background, i.e. the environmental, economic, social, and political conditions that the speech communities in the Kenyan Highlands have lived under for the past 500 years.
In this section, the extra-linguistic background is dealt with in a twofold way: First, after a brief geographical introduction, I generally discuss what needs to be taken into account when dealing with the sources from which socio-historical information on Central Kenya can be drawn, i.e. the relevant material, consisting of oral traditions, is subject to a critical look, and the question of reliability is addressed. Second, the extra-linguistic evidence is compiled in order to provide a general overview of the history of Central Kenya, starting with the immigration of the first Bantu-speaking people into the Kenyan Highlands around the beginning of the 16th century.

(1) An Introduction to Central Kenya

Central Kenya covers a territory of approximately 55,000 km². The Bantu languages of Central Kenya are spoken in an area of about 26,000 km², that can geographically be divided into two main regions: the upper parts around Mount Kenya and the lower parts in the east of Central Kenya. In the west, the region borders the Rift Valley, partly separated from this continental fault by the Aberdares. The eastern boundary of the Kenyan Highlands may be described as a more or less straight line of demarcation running from Nyambeni Range southward across the Mumoni Hills; it ends at the Yatta Plateau, the southernmost point of the Highlands. The lower parts of Central Kenya lie east of this line stretching almost half way to the lower stream course of the Tana River.
In the middle of northern Central Kenya lies Mount Kenya, an extinct volcano with an icy top at 5,199 meters above sea level. The melt water of the glacier is an important water source for the entire region. It runs down the numerous slopes of the mountain forming creeks and small rivers, that eventually flow into the tributaries of the Tana River. The lower slopes of Mount Kenya, divided by steep valleys, are mostly covered with forests providing fertile grounds for cultivation. The foothills, with their moderate climate, plentiful rain, and rich soils, have always been considered fruitful farmland by both African agriculturalists and European settlers. The lower parts in the east of Central Kenya are much more arid than the highlands and show a more extreme climate. Nevertheless, the area between Machakos and Kitui has been used as grazing land by local herders for at least five centuries.
The arrival of the British at the end of the 19th century set off the starting signal for the development of a modern infrastructure in Central Kenya. Because of the moderate climate, considered pleasant by many Europeans, and the promising farmland in the Kenyan

Highlands, the main focus of the colonial administration lay on the exploitation of Kenya's upcountry. One of the first major undertakings by the British was the building of the Uganda Railway connecting the interiors of Uganda and Kenya with the seaport of Mombasa. In 1899, a supply depot was set up along the tracks, which soon became the railway's headquarters and later turned into the city of Nairobi, now the capital of Kenya and a major hub for business in East Africa. Further uphill, towns such as Nyeri and Meru were established by the British during the first decades of colonialism. These towns have ever since served as regional centers for trade, administration, and education. Today, the towns are connected by major roads that run around Mount Kenya and throughout the lower east of Central Kenya enabling travelers from the capital to reach even remote settlements in no longer than just a few hours.

Until recently, the Republic of Kenya was divided into eight provinces. The Central Kenyan Bantu language area spans across two of these former provinces. It comprises all of what used to be Central Province and a large region in the south of former Eastern Province. With the introduction of a new constitution in 2010, the administrative unit 'province' was replaced by a division into 47 counties. The Central Kenya Bantu language area extends over the following nine counties: Embu, Kitui, Kiambu, Kirinyaga, Machakos, Meru, Murang'a, Nyeri, and Tharaka-Nithi. Additionally, Nairobi county lies in the Central Kenya Bantu language area. However, due to its international character, the city of Nairobi can hardly be considered a Gikuyu town but rather as an urban center where a large variety of languages are spoken, both of African and non-African origin.



Map 2: The Kenyan Highlands

(2) The Extra-Linguistic Sources

As it is often the case in the study of African history, in Central Kenya, too, there exist no written records that go back to the period prior to the arrival of the Europeans. Instead of script, the people in the highlands have kept record of their history by means of oral traditions, i.e. songs, folktales, proverbs, etc., in which cultural material is transmitted verbally from generation to generation. Since the beginning of scientific interest in Central Kenya, these traditions have been used as the basis of historical research.

The scholarly treatment of Central Kenya started with the arrival of travelers such as Ludwig Krapf, a German missionary and the first European to ever set eyes on Mount Kenya in 1849. Krapf and his successors started what would become a long tradition of linguistic, anthropological, and historical research in Eastern Africa, that reached its first period of prosperity after the British government began its conquest of Kenya in the mid-1890s. In the following decades, many European scholars devoted themselves to investigating the languages, cultures, and history of Central Kenya, including Beech (1913), Barlow (1914), and Lindblom (1920, 1928). During the era of British rule and after independence, especially in the 1970s and 1980s, many Kenyan and international scholars followed in the footsteps of these early authors publishing a variety of ethnological and historical works, such as Kenyatta (1956), Lambert (1949), Leakey (1977), Muriuki (1974), and Mwaniki (1974, 1982, 1985). Some of the publications from this period can even today be seen as authoritative in the field of East African historical and ethnographic studies.

The scope of this thesis includes an investigation of the impact of vernacular teaching on the dialectal situation in Central Kenya. Publications by scholars in political science, such as Mutua (1975) and Otiende et al. (1992), are referred to when dealing with the history of education in Kenya.

In the study of African history, one often relies on archaeological work. The country of Kenya has a long tradition of archaeological research: Ever since the pioneering work done by the renowned scientist Louis Leakey and his family, many international archaeologists have considered Kenya their favorite destination for field research, especially the Rift Valley. Their prime interest, however, lies mostly in the study of paleoanthropology and the origin of mankind, a subject way beyond the scope of this study. Besides, the Kenyan coast offers a number of sites that go back to the early urban societies of the region and attract archaeologists from all over the world. The central highlands, in contrast, have been somewhat neglected by historians, especially when it comes to studying the more recent past of the area. For this reason, the oral traditions of the different highland communities as well as ethnographic and socio-anthropological works seem to be the most reliable extra-linguistic sources available.

Some excavations and carbon-14 dating in the 1970s did, however, reveal that pottery similar to the Kwale-type, typical of the Kenyan coast, had already been in use in Central Kenya around the 12th century, circa 400 years prior to the alleged first immigration of Bantu pioneers (Muriuki 1974: 53). Archaeological work also produced some evidence of early iron working and domesticated animals in the area. However, the conclusions drawn from these archaeological findings concerning the identity of the people who left these remnants behind seem to be rather speculative (ibid.). In short, claims as the one made by archaeologists, such as Siiriänen (1971) or Soper (1979), about the ethnicity and language of the early inhabitants based on the discovery of Kwale-type pottery remain inconclusive.

Moreover, as Kiriama (1993) shows in an exemplary comparison of Gikuyu and Gusii material culture, some archaeological work has contributed to the obfuscation of historical facts instead of discerning them. Both the Gikuyu and Gusii, according to Kiriama (1993: 497), may be classified as belonging to a generalized Bantu cattle culture. There are,

however, considerable differences between these groups, especially in terms of their respective modes of production and use of iron. Kiriama (ibid.) argues that, in this particular case, the correlation between linguistic evidence and archaeological findings created homogeneities where there was, in fact, a great deal of heterogeneity. In general, Kiriama's critique amounts to a dissatisfaction with the fact that the concentration on material culture, which is the sole basis of any archaeological work, might invoke us to overlook the social context, "which can be very important in explaining the similarities and dissimilarities that do exist among the Bantu speakers" (ibid.). This theoretical consideration combined with the fact that the relatively small amount of archaeological work focussing on the past 500 years of Central Kenya seems to be tentative at best provides good reason for concentrating on oral traditions as the most reliable extra-linguistic evidence.

Before turning to a general overview of the history of Central Kenya, the following paragraphs deal with some crucial aspects in the study of the extra-linguistic evidence. As mentioned above, the sole source for the study of the social history of Central Kenya prior to the 19th century are oral traditions. Ever since Africanists have consulted these verbally transmitted legends for historical information, the reliability of these sources has been under debate. Based on the "anthropological rationale that all myths are simply cultural charters and bear little resemblance to historical facts" (Spear 1974: 67), some historians have dismissed oral traditions altogether. Others, in contrast, have taken all the information inherent to oral traditions at face value contributing to the establishment and reproduction of a "historian's myth", as Spear (1974) puts it. He shows how the treatment of the Shungwaya legend, one of the most widely cited oral traditions in East Africa, has turned a traditional myth into a "historian's myth":

The legend has it that, once upon a time, the ancestors of the Mijikenda and other coastal groups in East Africa lived in slavery near a large body of water, presumably the Indian Ocean. Eventually, they went on an exodus, leaving their place of captivity behind while migrating south along the coast and settled in an area south of the Tana Delta. This oral tradition is found among many of today's different sections of the population along the Kenyan coast. Some people relate their social institutions, such as the age-sets and clan-systems, to the time their ancestors spent in Shungwaya and during migration (Spear 1974: 68 f.).

Lambert (1949: 7) suggests that the Meru and other groups of Central Kenya share this myth of origin with the coastal peoples of Kenya. This is, however, contested by Munro (1967: 25 f.): He admits that the Meru, like the peoples from the coast, see their place of origin near a large body of water, but he also states that a borrowing of this tradition by the Meru cannot be ruled out. Munro, (ibid.) moreover, accuses Lambert of having admissibly applied Meru historical evidence to all Bantu speakers of the Kenyan Highlands by claiming Shungwaya origins for the Gikuyu, Embu, and Kamba. Muriuki (1974: 49) takes a similar stand in this regard.

There are two consequences to be drawn from the way different scholars have treated the Shungwaya myth: First, one needs to be careful not to fall for the historian's myth. Consequently, this means that any historical evidence drawn from the literature ought to be corroborated by more than one source so that the reproduction of flawed information is avoided. This, of course, is imperative for any scientific endeavor and a scholarly implicitness that holds both for written and unwritten sources.

Second, it should be noted that the borrowing of oral traditions cannot be ruled out. Just like any aspect of culture, it is quite possible for oral traditions, be they myths of origin or not, to be transferred from one group to another, across ethnic and linguistic boundaries. Besides, oral traditions are often more than a mere account of historical events, even if these traditions fall under the genre of historical narratives. Often, they serve as a legitimization of certain

cultural traits, such as the previously mentioned age-sets and clan-systems, or they are reflections of specific social values (Kabira & Mutahi 1988: 10). The Rabai on Kenya's south-coast, for example, share the Shungwaya myth with the other sections of the Mijikenda. However, their demographic origin, as Spear (1974: 74) points out, lies in Rombo near Kilimanjaro. Their adoption of the Shungwaya myth, according to Spear, came along with the adoption of Mijikenda culture. A similar example is a myth of origin found in the Kenyan Highlands that claims a common origin for the Bantu-speaking Gikuyu and Kamba as well as for the Nilotic-speaking Maasai (Middleton & Kershaw 1965: 14 f.). From a historical-linguistic point of view, of course, there is no evidence that would suggest such a common ancestry of Bantu- and Nilotic-speaking groups. This myth rather answers a different purpose than a record of demographic history: The Shungwaya myth legitimates Mijikenda culture among the Rabai. The myth of common origin of Gikuyu, Kamba, and Maasai, accordingly, serves as an explanation of ethnic diversity and cultural interdependence rather than as a historical account of common provenance.

Another point to be acknowledged when dealing with oral traditions is the issue of political pressure on the colonized. By the time most oral traditions were collected by European researchers, the scramble for territory was in full swing, which resulted in a fierce competition over farmland (Dutto 1975: 24). As Lambert (1949: 13 f.) describes, a land committee appointed by the colonial administration in 1929 asserted that the Embu, Chuka, Mwimbi, and Muthambi had no traditions of migration from somewhere outside their current homeland. A few years earlier, when land had not been such a political issue, Orde Browne (1925: 20) recorded that only the Chuka saw themselves as the original inhabitants of their territory. Some groups apparently denied having a history of migration for fear of losing their land to the British. These worries were not totally ill-founded as the expansion of the western Gikuyu was still underway by the time the British arrived in Central Kenya (Leakey 1977: 51). The colonial government used this circumstance as an argument to seize land that it considered unused, regardless of whether it actually was or was not used. This needs to be taken into account when evaluating the plausibility of certain oral traditions.

These considerations are, however, by no means intended to discredit the historical value of oral traditions. On the contrary: when dealt with properly, the legends and myths, combined with ethno-historical work on Central Kenya, can provide reliable information on the region's past. This also holds for the problem of dating certain historical incidents. Muriuki (1974: 20 f.) shows, albeit tentatively, how a collective memory of former ruling and military generations in Gikuyuland can be used to come up with a relative chronology of historical events. Muriuki's calculations, combined with other extra-linguistic evidence from numerous historical and ethnographic works on Central Kenya, are the basis of the historical outline in the following paragraphs.

(3) The History of Central Kenya

The following pages provide a general overview of the past 500 years in Central Kenya along the lines of the social, economic, and political processes that shaped the different societies in the Kenyan Highlands. In other words, this section explains how the population structure encountered today has come into being. The main focus lies on migration patterns and socio-cultural interdependence, both within the Central Kenya Bantu language area as well as with outside communities. Additionally, the major impact of colonialism and more recent developments are discussed.

a) Precolonial Times

The story of the Central Kenya Bantu languages begins about 500 years ago with the migration of the first Bantu speakers into the Kenyan Highlands. What lies beyond this period of time is only vaguely described in most oral traditions. In each community there exists a large variety of alternating myths of origin. Middleton and Kershaw (1965: 68), for example, state that both the areas around Garissa and Kilimanjaro are claimed as prior settlements in Kamba traditions. What seems to be conflicting evidence at a first glance does not, however, have to be necessarily understood as such. It is possible that small groups of people moved into the highlands from different directions only eventually converging culturally and linguistically to ultimately form such entities as 'the Kamba'. However, all traditions, regardless of today's ethnic affiliation, agree on the fact that the early Bantu speakers moved into the highlands from places beyond their current homeland. The direction these early migrants came from is only rarely specified in the traditions.

Similarly, little is known about the inhabitants of Mount Kenya who lived there prior to the arrival of the first Bantu speakers. It is clear, however, that the area had been inhabited by small groups of hunter-gatherers, who practiced iron-work, pottery-making, and bee-keeping (Odhiambo et al. 1977: 70). These societies are referred to in the oral traditions under different names, such as Athi, Dorobo, Gumba, and Okiek. What happened to these original mountain dwellers is not absolutely clear; apparently, they were either absorbed or expelled by the new arrivals. In the southeastern corner of Mount Kenya, for example, the Gikuyu pioneers encountered some Dorobo groups after crossing Chania River and moving south around 1700 AD (Leakey 1977: 51). They acquired land from the Dorobo by establishing kin-relationships, rendering the Dorobo the ancestors of a number of Gikuyu sub-clans (Muriuki 1974: 29). In other parts of today's Gikuyuland, the encounters with the original residents of Mount Kenya are said to have been less peaceful. The Gumba of Gathanga (midway between the present-day towns of Nyeri and Murang'a), for example, were driven into the northern plains next to Mount Kenya by Gikuyu forces (Muriuki 1974: 65).

In the literature, there is overall considerable confusion on who these original inhabitants of Mount Kenya were – in most oral traditions the different groups of predecessors to the Bantu immigration are not distinguished (Muriuki 1974: 39). In general, as Ambler (1988: 9) points out, little is known of these people and of their links to successor populations. In the wider context of Eastern Africa, however, various historical facts are widely agreed upon by most researchers. For example, it is generally understood that between 300 BC and 400 AD East Africa witnessed a sweeping dispensation of Bantu speakers from the Great Lakes region as far east as the Indian Ocean (Ehret 1998). It is also clear that farmers have occupied areas of Central Kenya since at least 1000 AD. Their agricultural economies expanded gradually over centuries and, in more recent times, gained major dominance after 1800 (Ambler 1988: 9).

Next to the agriculturalists, there were different groups of foragers scattered throughout the area, whose traces are, however, difficult to track. According to Liesegang et al. (1979: 16), some of these groups were speakers of Southern Cushitic languages. Their territory extended from Mount Kilimanjaro as far north as the Central Kenyan Highlands. The linguistic evidence in this study, which shows some Southern Cushitic influence on the lexicon of Central Kenya Bantu, seems to confirm this view. The exact fate of these hunter-gatherer communities is, however, largely unknown, as most of their members seem to have abandoned their foraging mode of living by assimilating to their agriculturalist or pastoralist neighbors. With this change of lifestyle came along a full social assimilation, possibly followed by a language shift to the more widespread Bantu and Nilotic varieties in the area.

The Nilotic speakers had pushed forward into the East African interior from the north in search for favorable grazing grounds between the 15th and 17th centuries. Around that time,

they encountered Bantu speakers. The Nilotes were primarily pastoralists, but also engaged in some cereal cultivation (Shillington 2012: 125). Northern Cushitic groups, such as the Somali and Oromo, also approached Kenya from the north, gradually occupying the dry savannah grasslands of Eastern Kenya around the 16th century (Shillington 2012: 122). It can, however, be ruled out that northern varieties such as Somali or Oromo have had any impact on the modern linguistic profile of Central Kenya Bantu, as no plausible contact scenario exists. For example, no diffusion of Oromo lexical items into Central Kenya Bantu can be found.

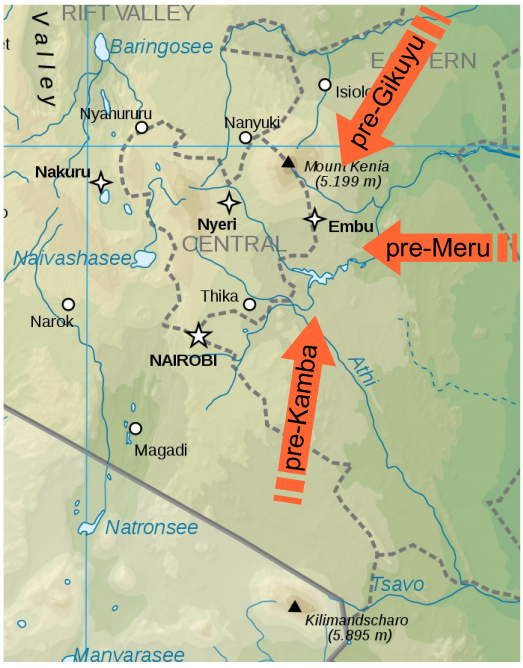
In most general terms, the demographic situation of wider Eastern Africa may be described as a continuous tidal ebb and flow of populations throughout the last two millennia (Fage 1978: 112), involving speakers of different language families, such as Nilotic, Cushitic, Bantu, and even 'Khoisan'. In this context, we are safe in assuming that a great amount of cultural interaction existed between the different populations in East Africa, often facilitated by migration. On a side note, we must not be mistaken about the fact that any attempt of reconstructing the history of East Africa will always provide a rather narrow view of the past and only a limited understanding of the times before the 19th century (Ambler 1988: 9).

In order to understand the history of migration into Central Kenya, the nature of population movement in the area needs to be clear. One must not picture this migration as something similar to a great trek of refugees but rather as a slow expansion across the highlands in successive stages and over many generations. Metaphorically speaking, there never has been a stream of people moving through Kenya's upcountry. The movement of small groups of people should rather be compared to water drops trickling into the area, eventually forming pools of water, i.e. areas of relatively high population density. It is important to note that by the time the Bantu speakers moved into the Kenyan Highlands, it was small factions of individuals on the family-level that spearheaded the movement, not larger ethnic groups entering new territory. These original groups had no social or political unity as is presently found among the Gikuyu, Kamba, or Embu (Fadiman 1973: 19). Ethnic identity, as we know it today, arose at a much later historical stage.

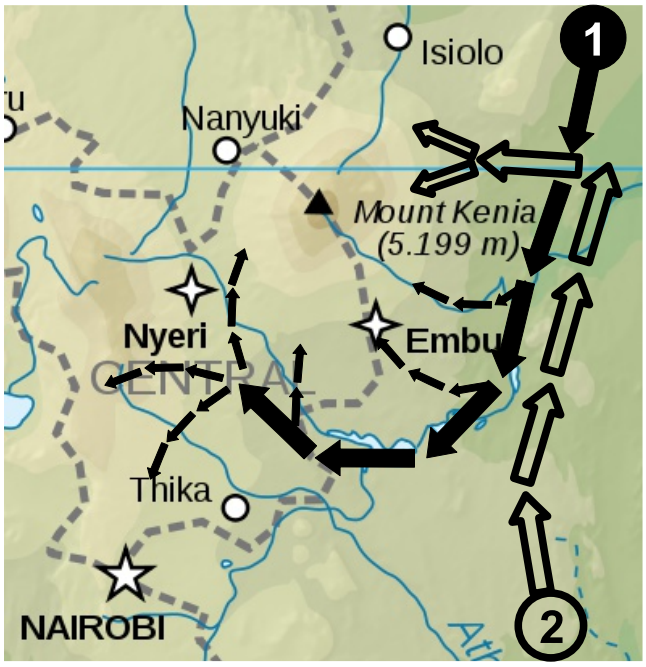
In the beginning, the expansion of Bantu-speaking communities was slow. When land was becoming scarce, people moved away from their home opening up new farmland nearby. This is described in numerous ethnographic works on the region. The Kamba and Gikuyu, for example, followed similar rules of land tenure: During the early stages of expansion, any land to which no one had individual property rights was allowed to be taken over for cultivation, grazing, and the establishment of a homestead (Penwill 1951: 32). In former times, the sons of a family would leave their home when reaching adulthood clearing fresh land close-by; the youngest would stay behind to eventually take over his father's holdings (Penwill 1951: 43). A right to ownership was acquired by forest clearance and subsequent cultivation (Fliedner 1965: 3). The search for fresh farmland and the practice of shifting cultivation as well as population pressure can be seen as the major instigators of the expansion of Bantu-speaking communities in Central Kenya that would last until the beginning of the 20th century.

There is a large amount of oral traditions that deal with the migration routes the ancestors of the present population took during the initial expansion throughout Central Kenya. The following paragraphs provide an outline of these migration patterns, among which three major paths of influx into the highlands can be identified:

The two maps below depict these major paths of immigration (they do, however, represent an oversimplification of the actual migration history). Map 3 shows the three major routes that the early Bantu pioneers allegedly took into Central Kenya. The migration of the pre-Gikuyu, as map 4 indicates, originated in the north of the era slowly moving clockwise around Mount Kenya, while the pre-Meru approached the mountain massive from the south in an opposite direction.



Map 3: The major paths of influx of Bantu speakers into the Kenyan Highlands



Map 4: Pre-Gikuyu (1) and Pre-Meru (2) migration within the Kenyan Highlands (ca. 1500-1900 AD)

Among the Kamba there exist varying views on their place of origin. Some traditions point towards Kilimanjaro, others towards northeastern Kenya. The first settlements of a pre-Kamba population, possibly near Mumoni, date back to 1650 AD (Maxon and Ofcansky 2000: 105). About one hundred years later, the Athi River was crossed and the expansion into Masaku and other areas now called Ukambani took its course (Middleton & Kershaw 1965: 68).

The second major route taken by Bantu-speaking immigrants into the Kenyan Highlands runs from eastern Kenya in westerly direction towards present Mbeere country, as oral traditions of the Meru claim. The groups that followed this path into the highlands approached Mount Kenya from the south in the 16th century (Fadiman 1973: 22 f.). According to Fadiman (ibid.), Lambert (1949: 7 ff.), and Nyaga (1997: 1 ff.), these pre-Meru migrants called themselves Ngaa by the time. Their social unity, however, dissolved upon arrival in the present Meru territory, and the population subsequently diffused throughout the eastern foothills of Mount Kenya. It was not until the early 20th century that a sense of unity among the different factions in that area was re-established.

Only the narratives of today's most northern communities claim that their ancestors were unified by a kind of ethnic identity prior to their arrival in the Kenyan Highlands. This social unity deteriorated by the time the pre-Meru, called Ngaa, reached Central Kenya. The fact that some sort of social unity among them seemed to have existed at a certain point in history makes these Meru oral traditions unique compared the remaining legends of the region.

The ancestors of the communities now living in the southern and southwestern foothills of Mount Kenya migrated into Central Kenya from yet another direction. According to Muriuki (1974: 49 ff.), the ancestors of the Gikuyu, Tharaka, Embu, Mbeere, and Chuka moved into the highlands from the north. Along the way, some of these groups settled permanently laying the foundation for present communities such as Tharaka, Embu, and Mbeere. The first immigrants, who followed this particular migration path, presumably reached northern Central Kenya, near Nyambeni Range, around 1500 AD successively moving south. In the following century and after, the ancestors of the Embu and Mbeere moved into their present homelands (Chesaina 1997: 3), continuing to absorb new arrivals until the 19th century

(Mwaniki 1974: 20). The groups that advanced further around Mount Kenya reached Mukurue wa Gathanga, half-way between the present-day towns of Nyeri and Murang'a, in the 17th century. This is considered to be the ultimate point of dispersion of the Gikuyu, where a sense of ethnic identity started to emerge (Muriuki 1974: 62 f.). The expansion of the Gikuyu continued both north towards Nyeri and south towards Kiambu, eventually contained by Maasai forces and, later on, British troops.

Especially the last one of the three migration patterns outlined here is controversial. Muriuki (1974) claims a common origin for a large number of present-day communities, including Gikuyu, Tharaka, and Chuka. There exists, however, if not conflicting but at least contesting extra-linguistic evidence: While Muriuki (1974: 49 ff.) sees the Tharaka as one of the earliest off-shoots of a general south movement around Mount Kenya, Lambert (1949: 11) describes them as part of the pre-Meru migration heading north towards Nyambeni Range. Fadiman (1973: 24), in contrast, altogether excludes the Tharaka from the pre-Meru, once known as Ngaa. Instead, he contends that the historical Ngaa migrants encountered the pre-Tharaka when reaching Central Kenya in the early 18th century and intermarried with them.

The conclusion to be drawn from these seemingly inconsistent historical descriptions is as follows: It needs to be considered that the Tharaka, like many Central Kenyan communities, live in an area that has been crossed by different migration routes throughout the last centuries. It is, therefore, easy to conceive how these groups of migrants have left various traces in the area by engaging in social and political alliances with the (pre-)Tharaka. In other words, the different views by Muriuki (1974), Lambert (1949), and Fadiman (1973) demonstrate that any one ethnic group might historically consist of individuals with quite diverse genealogical backgrounds. It also shows the fact that the three major migration paths illustrated above have probably crossed many times at different historical moments leading to a complex structure of socio-historical ties in Central Kenya. A detailed look at these social affiliations is taken in the following paragraphs.

The most intensive relations the Bantu speakers of Central Kenya have had with their neighbors are the different Maasai communities. According to their oral traditions, the Maasai originated somewhere in the area around Lake Turkana or even further north and have occupied the region between Mount Marsabit (circa 120 km west of Lake Turkana) and Central Kenya since the mid-19th century (Kipury 1983: 2). The first Nilotic-speaking groups are said to have moved south from Sudan and Ethiopia between the 15th and 17th century (Shillington 2012: 125). The expansion of the Maasai and other Nilotic speakers, such as the Samburu, into their current homeland was completed by the end of the 19th century (Ehlers 2010: 198).

The oral traditions of the Maasai contain evidence of various cultural interactions with neighboring communities during that time, for example with the Bantu speakers of Mount Kenya (Kipury 1983: 2). Almost all traditions of Central Kenya, in turn, claim in-depth contact with Maasai speakers of both a peaceful and a warlike nature – sometimes even simultaneously. Even when two groups were at war, the women of the two parties, then responsible for trade, were assured free passage in order to conduct their business (Alpers and Ehret 1980: 494). As Muriuki (1974: 28 f.) points out, the conflicts between Gikuyu and Maasai were, in contrast to a popular cliché, by no means any more numerous than fights among the different sections of the Gikuyu themselves. In general, Maasai and Gikuyu engaged in intensive trade as well as marriage relations and occasionally formed military alliances against their neighbors. One example that shows how influential the Maasai have been on the Bantu speakers of the highlands is the social and political order of these communities that was taken over from the Maasai:

The social life of any male member of traditional Gikuyu society is essentially determined by two factors: age-class and age-set. Age-classes are the different stages in life that an

individual goes through from birth to death. In this system, male teenagers are initiated to become full members of society when capable of proving themselves as warriors. From this point on, they are allowed to get married and own property. Once a man fathers a child, he becomes eligible to take part in certain religious ceremonies as an observer. When his first son is old enough to be drafted, the father is able to climb up the social ladder, eventually becoming eligible to take part in the decision-making processes of the local community councils. All coeval members of the community, who are initiated at the same time, are considered to belong to the same age-set, i.e. one generation that is assigned a special name (Kenyatta 1956: 105). This particular social system, which is characteristic of all communities of the Central Kenya Bantu language area, with only slight differences between contemporary ethnic groups, was presumably adopted from the Maasai (Middleton & Kerhsaw 1965: 13; Chesaina 1997: 4). It ensured for the peoples of the highlands to have a strong force of warriors on call duty at any given time (Muriuki 1974: 65). Other warfare tactics, such as constantly manned outposts, that were able to alert the warriors of an imminent raid, are also believed to be an original Maasai strategy adopted by the Bantu speakers (ibid.). This example shows that the early Maasai influence on the highlands must have been so great that it was able to shape the entire social and political systems of the upland groups. However, it cannot be ruled out that certain cultural traits, such as initiation by circumcision and even parts of the age-set system, were taken over from prior populations, such as the Athi (Odhiambo et al. 1977: 70).

Another aspect crucial to the understanding of pre-colonial life in Central Kenya is the notion of 'clans'. Besides age-class and age-set, the belonging to a certain clan is the third determiner of an individual's social identity in the traditional communities of the highlands. The clans show, moreover, the incorporative nature of these societies.

Just as the ethnic boundaries, from a theoretical point of view, ought to be seen as rather flexible units, so is the notion of *clan* in Central Kenya. The belonging of an individual to a specific clan shows the person's position in society rather than always representing the genealogical background of an individual. In the literature, there exist many references to the fact that certain clans comprise members who, in the colonialists' eyes, belong to different ethnic groups. In other words, clan membership would often cut across the 'tribal' lines, that initially existed only in the colonialists' minds, but, nevertheless, characterize Kenyan society until today. Middleton and Kershaw (1965: 71 ff.) point out that among the Kamba there existed a type of fictional kinship based on sworn brotherhood within Kamba society as well as with members of other ethnic groups, an observation that Lindblom (1920: 140 f.) had already made a few decades earlier. Some of the 25 traditional clans of the Kamba, Middleton and Kershaw (ibid.) assert, are linked with certain Gikuyu clans, whose members assist each other in various aspects of daily life. In Tharaka, again, there exists a number of clans that trace their roots back to a mythical population called Njuwe, a term that refers to the Chuka and Embu, as Mwaniki (1982: 89) explains. In short, there is evidence that clans did not only comprise the members of a certain community that was linked, for example, by a common speech variety, but it very well may have included people with different ethnic and linguistic backgrounds.

The clan was the central point of any social, political, and economic activity within the local communities in pre-colonial times. The emergence of the clan systems is said to have taken place at different stages during the Bantu speakers' migration into Central Kenya. Meru traditions, for example, trace their clans back to the time when their ancestors allegedly left their previous home, where they are believed to have lived in slavery (Bernardi 1959: 9). In comparison, Gikuyu traditions explain that the founding father of the Gikuyu, who lived at Mukurue wa Gathanga, between present-day Nyeri and Murang'a, had nine daughters who

were the ancestors of today's nine Gikuyu clans (Lambert 1949: 20). According to this view, the Gikuyu clan system emerged during the 17th century.

The structure of the clan systems is more or less similar in all of Central Kenya. An example from Gikuyu society may serve to illustrate this: At the very bottom of the clan hierarchy lie the homesteads (*mũcii*), i.e. a collection of households (*nyumba*) composed of several wives and one husband, who is vested with the authority to settle minor disputes within the family (Middleton & Kershaw 1965: 75). These mostly dispersed homesteads are grouped into cooperative units (*itura*), which, make up even larger moieties (*mwaki*), that comprise all the inhabitants of a mountain ridge (*rũgongo*), the preferred location of settlement. At the top of the clan hierarchy are the lineages (*mbari*) with up to several thousand members, that identify with a specific 'super-clan' (*mũhĩrĩga*). Each of these units can be considered to be an administrative section of Gikuyu society ruled by local councils responsible for all executive and judicial matters. The policy-making power lies with the elders of the highest councils at the ridge- and lineage-level (Mwaniki 1973: 51 ff.). In former times, land, for example, was mostly a private matter, as ownership rights were acquired by the clearing of uncultivated land. With the establishment of the Gikuyu clan systems in the 17th century, however, land tenure shifted to the lineages granting clan members a say in the inheritance of individual farmland. Insofar, the clan system has, since its establishment, played an exceedingly important role in all aspects of everyday life: from security in times of war as well as coordinating the workforce of its members to settling legal disputes and controlling the distribution of land.

It is important to note that the membership of one Gikuyu lineage does not necessarily reflect an individual's factual genealogical history. Rather, the clan system is an example of how the different communities in the highlands managed to incorporate not only cultural traits but actual individuals into their society. This holds both for the inclusion of the original inhabitants of Mount Kenya and for members of the communities adjacent to the Central Kenya Bantu language area. According to Muriuki (1974: 29), not only are the Athi but also some Maasai the ancestors of a good many Gikuyu sub-clans, especially in the Nyeri area. At the same time, some Kamba clans claim Gikuyu descent (Middleton & Kershaw 1965: 71), and Embu society is said to have several origins as well (Mwaniki 1973: 22). For the Meru, too, considerable relations with the Maasai are claimed, some of whom are said to call themselves 'Amaasai Meru' until today (Nyaga 1997: 14). In general, there are numerous interethnic references to be found in the oral traditions. In Embu, marriage relations with Kamba and Chuka are attested (ibid.); Chuka, Mwimbi, and Tharaka are claimed to consider each other as siblings, and the latter, in turn, assert additional family relations with Kamba, Mbeere, and others (Lambert 1997: 12, 16). In short, there is a vast amount of extra-linguistic evidence indicating that numerous socio-historical relations existed both within the different factions of Central Kenyan Bantu speakers and with communities outside this area. Mostly, these affiliations were based on the exchange of goods and, consequently, can be considered socio-economic relationships.

The economic interdependence between the different groups in the highlands, as described in their oral traditions, constitutes a vast pre-colonial trading network that covers all of Central Kenya and extends as far as the East African coast. It is evident that these interethnic relations have played an important role in shaping the different societies in the area.

According to the oral traditions, the mode of living of some of these groups was subject to substantial changes upon arrival at Mount Kenya. Embu traditions, for example, suggest that their ancestors were hunter-gatherers before they settled in the Kenyan Highlands, picked up pastoralism, and gradually adopted agriculture (Chesaina 1997: 5). The Kamba claim to have been both hunters and farmers in former times, who learned about pastoral culture on trading expeditions (Middleton & Kershaw 1965: 68). The Meru and Gikuyu, in turn, claim to have

been agriculturalists since the beginning of time (Fadiman 1973: 10; Leakey 1977: 168). In general, all of the groups around Mount Kenya practiced mixed economy, i.e. they engaged in cultivation as well as in keeping livestock. Depending on their habitat, the main focus of their economic activities lay on either one of the above. Due to relatively infertile soil in parts of the Kiambeere Hills, for example, the Mbeere concentrated on keeping livestock while engaging in horticulture only on the side (Chesaina 1997: 5).

In addition to the cultivation of sweet potatoes, yams, beans, sugarcane, etc. in subsistence farming and to raising cattle, sheep, goats, etc., handicraft was also an important part of the pre-colonial economy. This includes tannery, woodwork, pottery, and iron-work. The latter is said to have been adopted from prior inhabitants of the highlands, such as the Gumba, allowing early immigrants to clear the forest with iron tools (Muriuki 1974: 39). Beekeeping is also believed to have been taken over from these early mountain dwellers.

The indigenous inhabitants of Mount Kenya, known to have been foragers, were presumably the earliest and most important trading partners of some of the Central Kenya Bantu speakers. They sold land to the Gikuyu pioneers in exchange for livestock. They also acted as middlemen between the Gikuyu, the Maasai, and coastal traders (Muriuki 1974: 40). Trade within the communities was a private matter, as there were no organized markets in the Kenyan Highlands until the late 19th century, except for shops set up by local specialists, such as smiths (Leakey 1977: 501 f.). Even though operating on a private level, a vivid business network developed in the highlands, which included communities within Central Kenya as well as outside the area. In case of shortage, agricultural products were exchanged between the different sections of the population of the highlands, especially between neighboring groups. Animal hides, salt, and weapons were widely traded goods. Muriuki (1974: 84) explains how the respective modes of living of the Gikuyu and the Maasai were somewhat complementary: the Maasai, mostly pastoralists, acquired agricultural produce from the Gikuyu while, in turn, they sold animal products to their neighbors. The Kamba were providers of carved woodwork including weapons and animal traps; they also acted as brokers between the upcountry and the Kenyan coast. The Swahili and Arab traders from the coast were mostly interested in purchasing ivory and slaves (Middleton & Kershaw 1965: 69), bringing spices, elaborately crafted ornaments, and other commodities to the highlands in return. In this sense, pre-colonial Central Kenya was part of a large economic network, that spanned across East Africa and other regions adjacent to the Indian Ocean.

Muriuki's (1974) claim on the complementary nature of the economic relationships in the wider region also holds for some of the trading within the area around Mount Kenya, first and foremost in regard to Gikuyu-Kamba relations. The Kamba specialized, for example, in poisons and medicines as well as iron ore, while the Gikuyu offered a variety of foodstuffs, such as maize, sugar cane, and flour of different kinds (Muriuki 1974: 108). For the Gikuyu, as Muriuki (1974: 102) points out, the Kamba were the most important Bantu speaking trading partners in precolonial times, while the relations between the Gikuyu and other Bantu speaking groups of Mount Kenya were not any more cordial than between the Gikuyu and the Maasai. The reason behind this is the fact that all of the Bantu speakers in the area were primarily agriculturalists that did not require much from their neighbors (ibid.), whereas the pastoralist Maasai had to offer animal products. This is not to say, however, that economic relations within the eastern foothills were of little importance – the relations between Kamba and Gikuyu, according to Muriuki (1974), were just especially strong compared to the ties between other groups.

Even though there seems to have been relatively little incentive for trading between the different factions of agriculturalists in terms of regularly exchanging foodstuffs, there is oral evidence suggesting that various social and economic ties existed between the communities on the slopes of Mount Kenya. While foodstuffs were in little demand among these people,

except in times of famine, cultivation grounds certainly were. Traditionally, the basis for exchanging rights over land were kinship-relations, established, for example, through sworn brotherhood or marriage. For this reason, many groups would engage in social interdependence, as it was the case, for example, between the northern Meru and the Tharaka (Fadiman 1973: 24) or between the inhabitants of Ndia and Gichugu and their Embu and Mbeere neighbors (Lambert 1949: 16 f.).
The social and economic interaction within the Kenyan Highlands may be summarized as follows: The Kamba, for the longest part of history, were the most influential traders of the region, who did a great deal of business with the Gikuyu, partially along the lines of Gikuyu clans that comprised both Gikuyu and Kamba speakers. The communities on the eastern slopes of Mount Kenya were more or less junior partners in this trading constellation. Nevertheless, between the various groups from Embu-Mbeere northwards, different social and economic ties, e.g. through inter-marriages and sworn brotherhoods, seem to have existed in former times, especially between the inhabitants of adjacent areas.
It was especially during times of crisis that the people of Central Kenya profited the most from the social and economic relationships with their neighbors. If disaster struck, each group was able to rely on other communities, with whom they had established longterm social and economic relationships. Muriuki (1974: 84 f.) argues that the Maasai were notably vulnerable to natural disasters, as their cattle – their main source of livelihood – were especially susceptible to disease. In case of crisis, the Maasai and others were often forced to seek refuge among their neighbors. In such times, for example during famine, desperate measures were taken: Some families left their children and women with their neighbors in exchange for food, planning to ransom them in better times. Often, however, these children were to become full members of their host societies by adoption. This practice, of course, presupposed friendly relationships between the different groups in Central Kenya. If these relations had been ruptured by a military conflict before famine struck a community, peace negotiations were undertaken in order to ensure the free flow of trading goods, ultimately securing the survival of a group in crisis (ibid.)
An example of such crisis is the great famine that struck Central Kenya at the close of the 19th century. It may be considered one of the most devastating series of events the people of the Kenyan Highlands have ever experienced. After scarce rainfall for several seasons, much of the population around Mount Kenya had been in a critical shortage of food when their crisis-ridden communities were additionally struck by rinderpest and smallpox followed by a plague of locusts. Because of the great dimension of this disaster, the traditional mechanism of crisis control failed to work, as herders and farmers alike were affected. Among the Maasai, the southern Gikuyu, and the Kamba, the death toll reached up to 40 percent in some settlements, afflicting in particular the old, the young, and the poor (Londsdale 1989: 16 f.). The consequences were far-reaching, as whole settlements were abandoned in search for food, and the social structure of entire communities was unhinged by these events (Ambler 1988: 127 ff.). Moreover, the great famine of the 1890s coincided with the arrival of the British and the successive setting up of a colonial conquest state, that brought unprecedented changes to Central Kenya. These would turn the social, political, and economic life of the local people upside down.

b) Colonial Times

The desolate situation many Central Kenyan communities found themselves in as a result of the great famine was taken advantage of by the British government, that started its conquest of Kenya at the coast in 1895. Not only were local armed forces severely impaired by the crisis, as many warriors had been killed in the famine (Lonsdale 1989: 16); the relationships

between many groups in the highlands were, moreover, ruptured due to the turmoil the famine had brought, thus rendering military alliances between them almost impossible. The communities in the vicinity of Mount Kenya, that had been less affected by the famine, were not able to cope with the heavy influx of refugees from the more arid parts of Central Kenya and, therefore, refused to house any new arrivals. Besides, the traditional practice of pawnship – leaving women and children with neighbors in exchange for food – resulted in additional trouble between the groups rather than relief as had been common in former times: When the crisis was beginning to ease in the late 1890s, the Maasai and Kamba who had left some of their women with the Gikuyu were eager to return them to their original homes. Many of these women had, however, already been married into Gikuyu society or they had even been sold as slaves. This shattered some of the longterm relationships the Maasai and Kamba had established with the Gikuyu in precolonial times (Ambler 1988: 148 ff.).

The British used these difficult circumstances to their advantage when the political cards were dealt out to new players by the colonial administration. While the people in the highlands had formerly identified socially with their immediate neighbors and members of their respective clans, they were increasingly forced to accept the new political units set up by the colonial regime: Paramount chiefs were installed by the government all over the country, and the concept of 'tribes' was introduced resulting in ethnic identities previously unknown (Ambler 1988: 152 ff.). For example, the British administration centralized the Mwimbi, Muthambi, Chuka, and Tharaka, subsuming them under the Meru group (Fadiman 1973: 9). Insofar, the first decades of colonialism had a lasting effect on ethnic boundaries in Kenya, along whose lines political conflicts are carried out even today.

Not only the British government but also the missionary societies, another major player of colonialism, emerged strengthened from the crisis in Central Kenya at the turn of the century. Initially met with little interest, the missionaries increased local acceptance by providing food aid during the great famine (Ambler 1988: 123). By doing so, mission schools and congregations were able to win a number of clients during the first decades of the 20th century, especially among the poor (Lonsdale 1989: 28). By means of formal education, the missions tried to gain influence on the local population, ultimately aiming at converting as many people as possible.

Christian mission started on Kenya's coast in 1846 with the first establishment of the Church Missionary Society by Johannes Rebmann near Mombasa. Even though a large number of international missionaries travelled to East Africa in the following years, the movement did not gain significant momentum until the last two decades of the 19th century (Mutua 1975: 16 ff.). We are, therefore, safe to assume that the impact of formal education on the linguistic profile of the region must have been rather low in the beginning. By that time, British colonial officers, European settlers, and missionaries alike started to concentrate their activities in the areas connected by the Uganda Railway. The first church in Central Kenya was built by the Africa Inland Mission in the Kamba area in 1895, followed by the Church of Scotland at Kikuyu three years later and the Italian Consolata Fathers at Kiambu in 1902 (Otiende et al. 1992: 42). From that point on, mission stations spread all across the Kenyan Highlands, especially during the first decade of the 20th century.

Initial local response to missionary work was relatively poor. In the beginning, the missionaries experienced difficulties convincing local parents of the benefits to be gained from formal education, as their children were needed at home to herd cattle or help in the fields (Mutua 1975: 28). Moreover, many missionaries seemed to use their students as servants forcing manual labor upon them. The fact that the missionaries discouraged the practice of local traditions and customs probably contributed to the initially opposing views on Western education (Sifuna 1990: 118). The earliest pupils, therefore, were orphans in

search for protection and welfare followed by young relatives of the new chiefs, who were seeking a career with the colonial administration (Lonsdale 1989: 28).
Education in the British protectorate had been almost entirely in the hands of the mission societies before the first government school was opened in Kitui in 1912. Around that time, government involvement in the educational sector increased, albeit remaining on a low scale until the 1920s. Official commitment to local schooling was mostly limited to the provision of government grants to mission schools introduced by the Fraser Education Commission in 1908. Only in areas not effectively served by mission stations, government schools were opened, e.g. in Machakos Town in 1915 (Ssekamwa & Lugumba 2001: 4). Asian and European children, of course, were educated separately from African students.
According to Ssekamwa & Lugumba (2001: 11 f.), there were four interest groups involved in the educational sector of colonial Kenya, each having its own agenda and propositions for the curriculum in public schools. While the British administration was mainly interested in the economic development of the colony and, therefore, favored vocational training, the goal of the mission societies was acquiring new converts through literary education and Bible studies. The latter, however, was opposed by European settlers as they feared the emergence of a new educated class of Africans, that would eventually come to challenge white supremacy (Mutua 1975: 63). The locals, in turn, were dissatisfied with the European schools altogether and proposed the establishment of independent schools, of which the first ones were opened in the Gikuyu area in the 1920s. In contrast to the mission societies, the colonial regime did not openly condemn these newly formed local schools (Ssekamwa & Lugumba 2001: 9). As a result, the education sector increasingly diversified after World War I.
In the mid-1920s, the different stakes in education were conciliated by the Phelps-Stokes-Commission, whose influence on education policy remained, however, relatively limited. It proposed a syllabus adapted to local realities that included subjects like health and agriculture as well as six years of vernacular teaching (Osogo 1971: 113). Prior to the Second World War, the colonial government seemingly took over more responsibility in the education sector than it had been the case in the early years of colonialism. Still, education of Africans remained a relatively low priority in colonial politics, even though a number of relevant commissions were appointed over the years. Yet, their propositions were only partially implemented. Accordingly, the quality of education and enrollment rates alike were relatively low due to poor teacher training and tuition fees respectively (Otiende et al. 1992: 49). Half of Kenya's literate African population, prior to World War II, was educated in small elementary schools, that were unaided by the government and run by missionaries as well as untrained teachers (Ssekamwa & Lugumba 2001: 14). Not until the end of the war did the British government attempt to significantly raise educational standards in Kenya. However, this plan was never fully implemented (Otiende et al. 1992: 53). The formal education of Africans in the colony was always subject to administrative neglect. Even when schooling was in high demand by African youths, the colonial education system in Kenya favored children from Asian and especially from European families.
European settlers were most influential in all divisions of colonial policy-making in Kenya. As an integral part of the colonial enterprise, the settlers were especially successful in enforcing their economic policy objectives. One of the most critical issues was the distribution of farmland in the 'White Highlands', as the area around Mount Kenya came to be known due to the influx of European farmers. Colonial policy was mainly designed to safeguard the interests of these settlers.
Ten years after the British had started their conquest of Kenya, the Foreign Office, in charge of the protectorate, complained about the financial aid it was sending to Kenya to cover the costs of the administration and its military operations. The settlers, in the meantime, campaigned for a policy of settler colonization that eventually led to the passing of the Crown

Lands Ordinance and the Native Registration Ordinance in 1919 (Zeleza 1989: 39 f.). Any territory in the protectorate had already been declared crown land about two decades earlier allowing settlers to buy land that was not cultivated by locals. The new policy of 1919 enabled settlers to even purchase land that was occupied by local farmers, who, in turn, were 'compensated' by the establishment of reservations (Fliedner 1965: 17). Naturally, the settlers picked out the most profitable land. In the highlands, the Maasai, Gikuyu, and Kamba were most affected by European land grabbing, which had a major impact on their respective modes of life. The Maasai were moved out of the Rift Valley and prevented from using their traditional trading routes. The introduction of livestock taxation and the establishment of national parks, where grazing was discouraged, put additional pressure on the Maasai economy. The Gikuyu from the Kiambu area and the Kamba from Machakos were also seriously affected by European settlements (Zeleza 1989: 44 ff.). Dutto (1975: 23) uses a concept from American history when describing that the Gikuyu were deprived of their open land 'frontier' with the beginning of European settlements. The custom of clearing fresh land and consequently acquiring ownership rights over it disappeared once and for all with the establishment of colonialism in Central Kenya.

The effects on the local economy were far-reaching. Formerly mostly engaged in subsistence, local peasants were now encouraged to cultivate cash crops in order to meet the demands of a growing population. In addition, colonial taxes were imposed on African farmers, who could only meet these new financial obligations by selling their produce on local markets (Zeleza 1989: 45). The settlers, however, feared economic competition and, therefore, had an interest in keeping efficient farming by Africans on a low level. They preferred the local population to be at the settlers' disposal as cheap workers (Fliedner 1965: 23). By the 1920s, land tenure had changed significantly in the Kenyan Highlands. Many local landowners within the reserves limited the rights of tenant farmers, and especially young people increasingly drifted to European farms and colonial towns in search for work. As a result, traditional lineage hierarchies started to crumble (Zeleza 1989: 59). Moreover, the colonial chiefs and other members of the new local elites used their superior political position to register the best reserve land in their names (Zeleza 1989: 46). The rigid boundaries of the reserves and the increase of cash crop production contributed to the shortage of land (Fliedner 1965: 24). The colonial administration made no attempts to tackle this problem until the late years of colonialism, when a large rural replotting project was undertaken in Central Kenya. The shortage of land, however, remained a big issue and is subject to debate in Kenyan politics even today.

In addition to the redistribution of land and the consequent establishment of European estates in the highlands, the founding of colonial towns brought lasting changes to the economic and social life in Central Kenya. Many of today's towns started as British outposts. Nairobi, for example, began as a supply depot for the Uganda Railway. Murang'a, formerly known as Fort Hall, was a British military camp that attracted Indian traders, who settled nearby eventually turning the town into a local business center (Zeleza 1989: 56). The 'urbanization' that followed the establishments of these first settlements began as early as the turn of the century. Impoverished by the great famine of the 1890s, many women moved to the colonial outposts or railway construction sites to make a living by the provision of services (Ambler 1988: 127). The early towns of Central Kenya also drew other migrant workers as well as missionaries, who set up churches and schools. Due to this influx of people from East Africa, Europe, and Asia, the towns soon began to expand in size. While Nyeri Town was inhabited by only a handful of Europeans and a few African soldiers in 1903, almost 8,000 people lived in the municipality by the time Kenya reached independence sixty years later (Dutto 1975: 61).

Ever since their establishment, the towns played a key role in terms of their commercial and administrative functions. At first, the military outposts served as bridgeheads for the exploration and exploitation of the Kenyan hinterland. Later, they developed into local centers of administration and regionals hubs for commerce. The colonial regime, on the one hand, exercised its control over the territory through the towns. The rural population, on the other hand, depended on urban markets after having shifted to the cultivation of cash crops. Insofar, there has always been a great amount of reciprocity between the towns and the rural areas. To illustrate this relationship, Dutto (1975: 29) uses a culinary metaphor: "It is true, for example, that bread is being distributed from the town to most rural areas, yet it is also true that traditional food is eaten by the great majority of the people in town." According to Dutto (1975: 28), the towns of colonial Kenya were the prime agency and diffusion point of social change. Or as Zeleza (1989: 66) puts it, the colonial town was a stage where Africa and Europe came into contact and clashed most openly. Colonial towns, such as Nyeri, came to be the centers of activity for both British troops and local resistance during the 'Emergency', as the struggle for independence is euphemistically referred to in Kenya (Dutto 1975: 18).

The period of colonialism had a major impact on the economic, political, and social life in Central Kenya. Not only did the British government meet the Kenyan population with a locally unprecedented amount of violence, but its policy also deprived many people of their livelihood. A substantial amount of the rural population was either driven to work on European farms or moved into town. As a consequence, the social ties within and between communities in Kenya deteriorated. Unsurprisingly, the protest movement against the regime in the late years of colonialism arose first where European impact had been most severe (Maloba 1989: 182).

In 1952, the Gikuyu-dominated Kenya Land and Freedom Army, known as Mau Mau, set out to fight colonial power in the highlands. In reaction to African resistance, the British government introduced further changes to its settlement policy that had been repressive of the rural population in the first place. In order to cut off supply for the Mau Mau, the British devised a resettlement scheme in Nyeri, Murang'a, Kiambu, and Embu. In its course, more than one million Gikuyu were coerced to move into villages replacing the traditional way of settling in dispersed homesteads. Additionally, thousands – whether Mau Mau sympathizers or not – were deported to detention camps (Elkins 2005: 32). Subsequently, the towns reached increasing importance as strategic points in the war against the Mau Mau. In Nyeri, for example, two British brigades, thousands of soldiers, policemen, and local homeguards were stationed during the Emergency (Dutto 1975: 19).

The military strength of the British troops was overwhelming compared to the Mau Mau forces, which lacked heavy weaponry altogether. Still, the war went on for almost a decade, from which the colonialists eventually emerged victorious. We may argue, however, that the conflict lay the cornerstone of Kenyan Independence. It is evident that the Mau Mau rebellion had far-reaching consequences for Central Kenya. Especially the lives of those who had been directly involved in the conflict would change significantly: After release from the detention camps, many former Mau Mau activists moved into the reserves. Their rehabilitation depended on the loyalists' goodwill, i.e. on the chiefs and their headmen. In many cases, the former rebels came to realize that they had lost all of their social influence and sometimes even their land during the Emergency. Gikuyu society seemed to be divided between radical Mau Mau sympathizers and conservative loyalists (Maloba 1989: 191).

Even those who had not directly been involved in the conflict faced significant changes as a result of the Emergency. Soon after the rebellion had broken out, the colonial government decided to tackle the land problem in order to undermine the basis of Mau Mau agitation. In 1954, it introduced the Swynnerton Plan that would completely change the agricultural geography of Gikuyuland. Its aim was to create a new African landholding middle-class, that

was hoped would have a moderating influence on Kenyan politics (Maloba 1989: 190). Due to the establishment of Emergency villages, much of the rural area between Kiambu and Embu had been depopulated. During the years of Mau Mau, 110 new villages were built in Kiambu alone (Fliedner 1965: 37). The government then set an extensive land consolidation scheme in motion in order to replot the farmland. As a result, 300,000 separate parcels of land were turned into 37,000 consolidated plots in Kiambu. Most of these were, however considered uneconomical by contemporary standards due to their small size (Fliedner 1965: 40). By the mid-1960s, half of the population of Kiambu lived in villages, while the other half resided in homesteads scattered throughout the area (Fliedner 1965: 38). Insofar, the mode of settlement in colonial Central Kenya differed substantially from the way all homesteads had been dispersed in former times. Moreover, by the late 1950s, as the withdrawal of the British government from Kenya became immanent, European farmers increasingly sold their land. The Kenya Lands Order Council of 1960, consequently, ended white supremacy in terms of land tenure, allowing African farmers to finally start reclaiming the 'White Highlands' (Fliedner 1965: 80). If the Mau Mau were a little rift in the lute of colonial dominance, the new policy of 1960 contributed to the end of European hegemony in regard to land ownership. In December of 1963, Kenya gained political independence after more than six decades of British rule.

c) Postcolonial Times

Some of the political problems that originated in the era of colonialism remained hot issues in the politics of independent Kenya. This holds especially for the distribution of land. Moreover, the ethnic boundaries that had emerged during colonialism, not least by British intervention, continued to be the main political dividing lines. Today, this is referred to by the term 'tribalism' and considered a major challenge to constitutional legality and social justice. A society or political party "may be described as 'tribalist' when it recruits members on the basis of birth into a particular linguistic, cultural or regional group" (Ochieng 1989: 215). The Gikuyu-Embu-Meru Association (GEMA), founded in the late 1960s, was such an organization that was rather successful in claiming land on behalf of its members. Officially, the GEMA was only making demands on land that had been held by European settlers in colonial times. In fact, however, it also claimed land previously belonging to other groups. In the course of the redistribution of formerly 'white' farmland, the Gikuyu, Embu, and Meru were clearly favored by the government. The way Jomo Kenyatta, a Gikuyu and the first president of Kenya, and his allies distributed all political power among the highlanders outraged other groups in the country. Even today, before each general election, a possible clash between different ethnic groups must be considered a real threat to the peace in the country.

The end of British rule did not only stop white supremacy in land ownership, it also abolished the racist educational policy of colonialism by ending segregation in schools (Sifuna 1990: 165). Education was seen as key to the country's economic growth that would provide African children with more opportunities in terms of self-reliance. Thus, in the first years after independence, the expansion of education was rapid (and to an extend uncontrolled by the government). Between 1964 and 1969, enrollment rates increased by about 20 per cent (Sifuna 1990: 162). After free primary education was introduced in 1974 (Olembo 1985: 3), enrollment rates finally rose up to more than 90 per cent in some areas. In terms of public education, the central parts of the country were relatively well off compared to other regions: In the districts of Meru and Kitui, almost 70 per cent of primary school age children were enrolled. Areas like Nyeri, Murang'a, and Kiambu ranked even higher in enrollment rates than the cities of Nairobi and Mombasa (Sifuna 1990: 162, 172).

Prevalent among the institutions that were established shortly after independence were vernacular schools run by catechists and untrained instructors. According to Sifuna (1990: 148), the quality of teaching in these village schools was relatively low. The Kenyan government was officially keen on the development of education. However, it did little to efficiently raise quality standards in local schools except for promoting teacher training with the establishment of a number of relevant institutions throughout the country. One of the reasons why most schools remained poorly equipped was the fact that financial responsibility for primary education lay largely on the underfunded district councils. By 1968, education was placed entirely in the hands of these local administrations (Olembo 1985: 2), while the federal government emphasized higher education (Sifuna 1990: 163).

Even today, primary education is a relatively obscure domain in Kenyan politics. Estimates concerning enrollment, drop-out rates, and the number of graduates are far from reliable. The same holds for the usage of teaching material in local schools. Every year, the Ministry of Education publishes a list of approved school textbooks, among them various vernacular publications. Only these books are supposed to be used in local schools. In daily practice, however, most teachers depend on the material available in their home towns regardless of the approval by the ministry. In order to assess the impact of vernacular teaching on the dialects of Central Kenya, this study, therefore, relies entirely on the textbooks available through the Kenya Literature Bureau in Nairobi and local bookshops upcountry.

The development of education in independent Kenya was moved forward the most in urban areas. In the municipality of Nyeri, for example, 17 primary schools, two teacher training centers, and a handful of other institutions existed in the late 1970s. At the time, the population of Nyeri was estimated at 20,000. Almost half of this population consisted of students (Dutto 1975: 41).

The towns, steadily increasing in size, continued to gain importance for the economy and social life, as population growth and urbanization were taking their further course. What had started as an expansion of peasant communities about 500 years ago, turned into a massive population explosion in the 20th century. According to the World Population Prospects of 2010, the population of Kenya has multiplied by the factor seven since 1950 (United Nations 2011). This contributed to the long-lasting problem of land shortage, which forced many people from rural areas into the towns and cities of Kenya. The example of Nyeri shows how great this influx has been: In 1971, only 14 per cent of its inhabitants were born in Nyeri, with the majority of the population consisting of first generation immigrants (Dutto 1975: 65).

These migrants from the rural parts of the country mainly moved into town in search for job opportunities. Ever since the establishment of the first colonial towns, unemployment and low wages have, however, been a major problem for the urban population. As a result, many African immigrants had no choice other than living in slums, where the inhabitants were often plagued by diseases, malnutrition, and violence (Zeleza 1989: 64). In present-day Nairobi, the shanty-town of Kibera is counted among the largest urban slums of Africa, whose actual population is difficult to determine but estimated by some to exceed 500,000. Even though living conditions for many urban dwellers were just as poor after independence as they had been in colonial Kenya, the role of post-colonial towns differs significantly from the time of British rule. "Colonial towns in Kenya, as elsewhere in the colonial world, developed as service and administrative centers, and were not centers of production either agricultural, as in some precolonial towns, or industrial as in the metropolitan countries" (Zeleza 1989: 63). After independence, Kenya's economy underwent a steep rise, and a number of manufacturing firms were set up, especially in big cities like Nairobi, but also in towns such as Thika (Ochieng 1989: 209 ff.). Consequently, the towns shifted from being centers of administration and transfer sites for agricultural produce to regional hubs for different aspects of commerce. Today, the towns of Central Kenya do not only function as reloading sites and

outlet markets, but also provide a number of different services both for the local population and for foreigners, such as tourists. These include accommodation as well as financial, medical, and educational services and the provision of transportation by small business operators. Some towns, such as Machakos, also host large manufacturing sites, where local workers of the informal sector, known as *jua kali,* repair appliances or produce hardware of all sorts.

Considering these developments, the post-colonial period has brought additional changes to life in Central Kenya. In pre-colonial times, subsistence farming and herding were the chief sources of livelihood in the highlands. During British rule, many peasants shifted to the cultivation of cash-crops, while additional sources of income emerged as Kenya's economy gradually diversified after independence.

The changes of the past few decades in the economic, political, and social life of Central Kenya are beyond the scope of this project – for example, the latest infrastructure projects, such as road construction. The development of traffic facilities in Kenya may be considered to have constantly increased mobility in recent years. The multi-lane highway to Nyeri, for example, completed in 2012, enables travelers from Nairobi to reach Mount Kenya in a few hours by public transportation. It is safe to assume that the relatively high amount of mobility today, to some extent, has an impact on the social and economic affiliations of Central Kenya. These recent advancements, however, are not reflected in the language data used in this study. As described in the following section 1.3, most of the language data at hand were elicited in the 1970s and 1980s. Any new development occurring during that time and afterwards are, consequently, not reflected in the language data, and are, therefore, excluded from this historical overview.

1.3 The Linguistic Data

The language data are composed of a variety of published, archival and unpublished material, elicited in a number of field campaigns. The data base is divided into a total of three data-sets that represent the different elicitation campaigns in chronological order: Eastern Kirinyaga, Kamba, and Western Kirinyaga. All empirical data are presented in the appendix, starting with the different phoneme systems and sound correspondence series (appendix A), followed by the lexical data (appendix B).

The first data-set, Eastern Kirinyaga, covers all dialects on the eastern slopes of Mount Kenya, i.e. from Embu northwards throughout Imenti, including Tharaka. All the data for these varieties are drawn from Möhlig (1974a). These comprise Embu, Mbeere, Chuka, Mwimbi, Muthambi, Igoji, Miutini, Nkubu, Imenti, and Tharaka. Wherever possible, Möhlig's findings have been corroborated by additional information, e.g. Lindblom (1914), Mutahi (1983), and Kanana (2011).

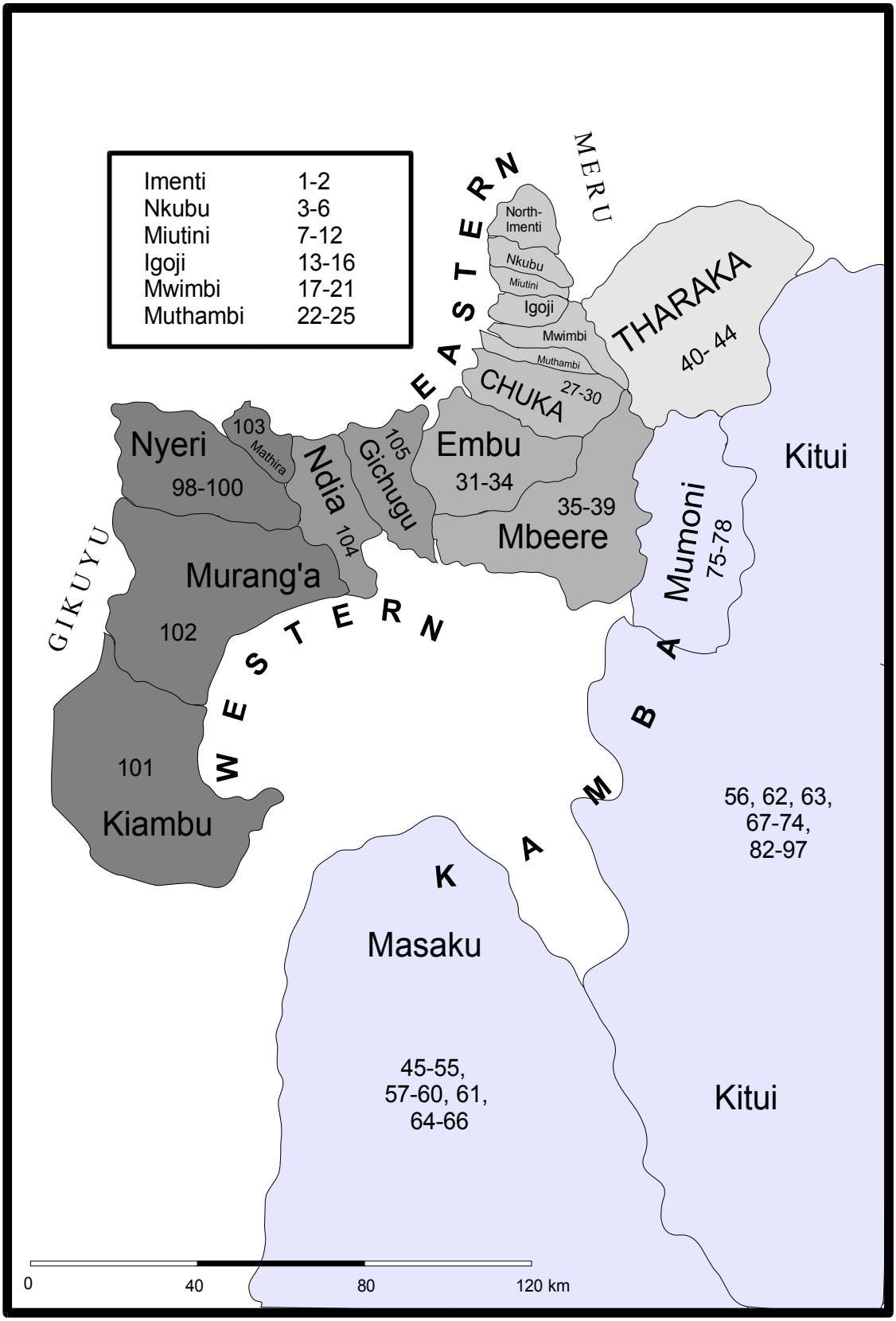
The data on the Kamba varieties, the second data-set, come entirely from the archives of Wilhelm Möhlig, who elicited these data in the 1970s and 1980s and has kindly granted me access to his documents. Kamba is a relatively well researched Bantu language with a long tradition of linguistic interest. The writings of Lindblom (1926), Whiteley and Muli (1962), Kioko (2005), and Mwau (2006) have been used in this study for phonological and morphological information on Kamba.

Finally, the data on the Western dialects, i.e. the four Gikuyu dialects Kiambu, Murang'a, Nyeri, and Mathira as well as the varieties of Ndia and Gichugu, were elicited during field work in the summer of 2012 by myself. Gikuyu is by far the most well researched language of Central Kenya Bantu. Linguists interested in this particular language have a vast amount of literature at their disposal. In this study, works such as Armstrong (1940), Barlow (1951),

Gecaga and Kirkaldy-Willis (1953), and Mutahi (1983) were consulted for information on the phonology and morphology of Gikuyu, including Ndia and Gichugu.
The data were elicited by means of Möhlig's 600-wordlist in a total 125 locations within the Central Kenya Bantu language area, i.e. a total of 125 speakers have been interviewed in the course of the different field campaigns. Each of these locations has been assigned a number from 1 to 105. The reason why this numbering only goes up to 105, instead of 125, is the fact that, for ease of consolidating the different data-sets, I followed Möhlig's (1974a) initial numbering of the locations in the Eastern Kirinyaga data-set. Some locations in Möhlig's system do not comprise a single number, e.g. in the case of Imenti, which consists of the locations 1 and 2. In total, however, three informants have been consulted on Imenti, namely in the locations 1a, 1b and 2. The following two pages provide a full overview of the locations where elicitations have been carried out. Table 3 lists all locations; map 5 below, in turn, shows their geographic distribution:

Dialect	**Location**	
Imenti	1-2	1a, 1b, 2
Nkubu	3-6	3a, 3b, 4, 5, 6
Miutini	7-12	7, 8, 9, 10, 11, 12
Igoji	13-16	13, 14, 15, 16a, 16b
Mwimbi	17-21	17, 18, 19a, 19b, 20, 21
Muthambi	22-25	22, 23, 24, 25
Chuka	27-30	27, 28a, 28b, 29a, 29b, 30
Embu	31-34	31, 32a, 32b, 33a, 33b, 33c, 34a, 34b, 34c
Mbeere	35-39	35, 36, 37, 38a, 38b, 39a, 39b, 39c
West-Tharaka	40-42	40, 41a, 41b, 42a, 42b, 42c
East-Tharaka	43-44	43a, 43b, 44a, 44b, 44c
Masaku	45-55, 75-60, 61, 64-66	45-55, 57-60, 61, 64-66
Mumoni	75-81	75-81
Kitui	56, 62, 63, 67-74, 82-97	56, 62, 63, 67-74, 82-97
Nyeri	98-100	98-100
Kiambu	101	101
Murang'a	102	102
Mathira	103	103
Ndia	104	104
Gichugu	105	105

Table 3: Locations of data elicitation



Map 5: Locations of elicitation in Central Kenya Bantu

Each location represents an idiolect, i.e. an individual's speech. As table 3 above indicates, locations may be subsumed under a specific dialect – a dialect represents a group of individual speakers. Möhlig (1974a: 37 f.) points out that any linguistic work which deals with dialectological classifications faces a number of challenges, especially the question of the relation between an idiolect and the lect of a group of individuals. Besides, there exists the problem of defining dialectal boundaries, which refers to a linguistic debate that seems to be as old as the scientific interest in geographic language variation. In general, the definition of a dialectal boundary is based on the bundling of isoglosses. In Central Kenya Bantu, such bundling is, however, difficult to find. Möhlig (1974a: 42) states for the Eastern Kirinyaga varieties that no more than five clear-cut dialect boundaries can be identified based on bundled isoglosses. Such dialectal borders are, however, not the main interest of this study, as the first goal of this investigation is the identification of linguistically homogeneous areas, i.e. regions where dialectal boundaries only play a minor role. Nevertheless, the question how an idiolect and the lect of a group of individuals relate to each other is crucial.

This question, Möhlig (1974a: 38) points out, may not be resolved in purely linguistic terms. He contends that linguists commonly understand language to be a system of communication between individual speakers. Thus, language is a 'group phenomenon' – a fact that is normally taken for granted by linguists, but rarely seems to be included in the scope of linguistic studies. Möhlig (ibid.) suggests for the purpose of dialectological work that it is best to refrain from the idea that idiolects may be related to a group of individuals that is defined in purely sociological terms. Instead, he proposes the use of geographic criteria in defining a particular reference group of speakers, as such criteria are most easily accessible to the researcher (Möhlig 1974a: 38 f.). Following this view, the subsuming of a specific number of locations under a particular dialect, as shown in table 3 above, is primarily based on geographic considerations.

As any location represents the speech of an individual, it may be understood as the most concrete unit of analysis, i.e. the locations lie on the very bottom of a proposed hierarchy of abstraction in dialectological analysis. On geographic grounds, these locations are subsumed under the umbrella of a larger unit, the dialect. For example, the locations 1a, 1b, and 2 make up the dialect of Imenti. This dialect is, in turn, incorporated into a group of dialects, i.e. a language or a dialect cluster. The language Meru, for example, consists of the dialects Imenti, Nkubu, and Miutini. The basis for the grouping of dialects into a cluster is the principle of *dialectal proximity* (see section 1.2.1) proposed by Heine and Möhlig (1980).

In this study, the different language clusters are subsumed under yet another type of analytical unit, the previously mentioned data-sets. For technical reasons, the data for the entire Central Kenya Bantu complex are divided into the three units Eastern, Western, and Kamba. The introduction of these large units of data-sets is the result of consolidating the data – in other words, the division into three sets is the result of the way the data have been elicited and processed.

In the course of this study, it will, however, become evident that this three-way split into Eastern, Western, and Kamba does also represent the linguistic situation in regard to dialectal distances within Central Kenya Bantu. It may, therefore, be convenient to speak, for example, of the Eastern Kirinyaga dialects when expressing the fact that all varieties from Embu northwards to Imenti and Tharaka share a specific language feature that is not attested in the remaining two sets.

In short, the linguistic data may be described as follows: At the very top of a proposed hierarchy of abstraction lies the entire language complex of Central Kenya Bantu, which is – foremost for technical reasons – divided into the three data-sets Eastern, Western, and Kamba. Each data set comprises a varying number of clusters (based on dialectal proximity), each consisting of a variety of dialects. A dialect is, in turn, a group of locations that are

subsumed on the basis of geographic criteria. The following figure shows this hierarchy of abstraction for the case of the Meru dialects, followed by an exhaustive data survey in table 4:

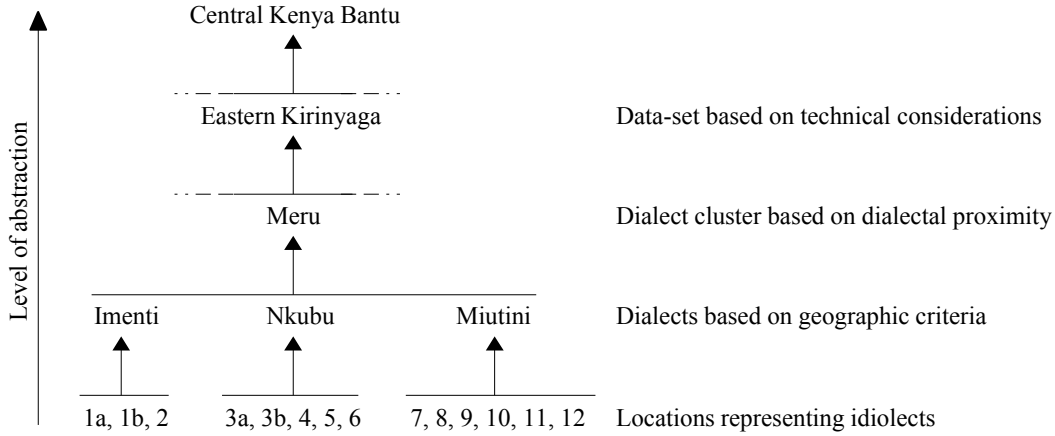


Figure 2: Levels of abstraction (example from Meru)

	Data-Set	Cluster / Language	Dialect	Location
CENTRAL KENYA BANTU	EASTERN	**Meru**	Imenti	1-2
			Nkubu	3-6
			Miutini	7-12
		Igoji	Igoji	13-16
		Nithi	Mwimbi	17-21
			Muthambi	22-25
		Chuka	Chuka	27-30
		Embu-Mbeere	Embu	31-34
			Mbeere	35-39
		Tharaka	West-Tharaka	40-42
			East-Tharaka	43-44
	KAMBA	**Kamba**	Masaku	45-55, 57-60, 61, 64-66
			Mumoni	75-81
			Kitui	56, 62, 63, 67-74, 82-97
	WESTERN	**Gikuyu**	Nyeri	98-100
			Kiambu	101
			Murang'a	102
			Mathira	103
			Ndia	104
			Gichugu	105

Table 4: Survey of the linguistic data

For the phonological investigation, the prime units of analysis are the dialects; thus, the data base for the quantitative phonological analysis consists of a total of 20 distinct dialects. For the lexical analysis, no such prior division into dialects has been made – the data table for the quantitative lexical dialectology comprises a total of 125 locations to be compared. The procedural principles that underlie the conversion of raw language data into data rendered for systematic comparison are laid out in detail in section 2.2.3.

There are some practical problems when dealing with language data that consist of different data sets: There exist discrepancies in terms of structure and notation between these sources, that need to be factored in when consolidating the database. In addition, one faces more theoretical challenges when dealing with such a large amount of data – the problem of synchronicity: The first elicitations were conducted by Wilhelm J.G. Möhlig in 1970 in the east of Mount Kenya, while the latest data were obtained in 2012 by myself in the Gikuyu language area – a data collection process lasting more than 40 years. During this time, the data were elicited by a number of researchers in a total of 125 locations. Therefore, we cannot say that the data represent an absolutely synchronic picture of the language situation in Central Kenya at a given time. The data do not resemble a mere linguistic 'snap-shot' but, metaphorically speaking, rather a panoramic photography of the dialectal situation in the Kenyan Highlands. This means that some of the language varieties were documented earlier than others.

For example, the data for Embu and Mbeere represent the state these varieties were in by the early 1970s. The Kamba and especially the Gikuyu data, in contrast, represent a more recent state in language history. Nevertheless, in order to meet the dialectological principle of synchronicity, the data at hand are considered to be synchronic, although they were not elicited absolutely simultaneously. Obtaining truly synchronic data for such a large language area as Central Kenya seems impossible, unless one is provided with more manpower.

Moreover, as language change may be spontaneous and abrupt in some cases, linguists can never be sure about the time span for which their data remain reliable. It is possible and even likely that language change is taking place at several locations during the very time of a long-lasting elicitation campaign (and, of course, after elicitation has been completed). Normally, dialectological data are elicited in the following manner: The linguist starts obtaining language data in a specific place as, for example, location 1. After the interview in this location has been completed, the researcher moves on to further conduct interviews in other locations, i.e. locations 2, 3, 4, etc. (see also Möhlig 1974a: 39 ff. for a detailed discussion of dialectological field methods). It can never be ruled out that while the linguist is eliciting data in location 3, the individuals previously interviewed in location 1 and 2 have, in the meantime, started to slightly change their speech behavior, e.g. by adopting a new loanword shortly after the linguist's visit.

In short, obtaining truly synchronic data for 125 different locations is impossible, unless a total of 125 researchers would be conducting language interviews absolutely simultaneously. It is safe to claim that any dialectological investigation faces this theoretical problem. Thus, the above mentioned choice to consider the data at hand to be synchronic, despite the theoretical problems discussed, is not only a question of convenience – there simply seems to be no other way of handling such a vast amount of empirical language data.

Moreover, the historical scope of this study comprises up to five centuries; compared to almost half a millennium of language history investigated here, the most recent linguistic developments that might have caused language change during the past four decades (i.e. during the elicitation process) may very well be disregarded for the purpose of this study. In this sense, the data at hand are considered synchronic and, therefore, expected to yield synchronic results, i.e. they paint a – more or less – contemporary picture of the dialectal situation in Central Kenya. It is true, however, that the more recent the processes are, that are

to be captured in this analysis, the less plausible becomes the assumption that the data may be treated as truly synchronic.

One of the most recent impacts on the linguistic profiles to be investigated is the influence of vernacular teaching, which started with the introduction of formal education in the early 1900s. The basis for the comparison of the empirical language data are, as mentioned in section 1.2.2, local elementary school textbooks. Many of these publications used today origin from the early years of Kenyan independence and the following decades – to some extrent, they coincide with the time the first data used in this study were obtained by Wilhelm J.G. Möhlig. According to officials working in the educational sector of Kenya (e.g. the Kenyan Institute of Education or the Kenya Literature Bureau), even the most recent schoolbooks are generally based on these early publications. We may say that both the empirical language data and the textbooks, which the data are compared with, provide a – more or less – synchronic basis of investigation.

I must admit, however, that in regard to the impact of school education on Central Kenya Bantu, the findings presented in this study can only be tentative. In section 1.2.2, I explained how enrollment rates in missionary schools were relatively low in the early years of formal education in Kenya. Therefore, we are safe in assuming that the initial impact of vernacular teaching must have been rather low during that time. After independence, the establishment of schools and the enrollment of African pupils underwent a steep rise – however, to some extent uncontrolled by the government. Consequently, reliable information on the methods and materials used in Kenyan elementary schools is difficult to obtain. Even today, the educational sector is a relatively intransparent domain of Kenyan politics, as numbers on enrollment, drop-outs, and graduates are far from reliable.

The obscure nature of the history of education in Kenya as well as the general problems of synchronicity and the reliability of the data render any claim made in this regard to be tentative. A further investigation of this subject would entail a profound study of the history of education in Central Kenya, including a thorough documentation of educational policy, teaching methods, school material etc. However, such extensive multi-disciplinary research is beyond the scope of this study. Nevertheless, I show in chapter 4 that a number of precise conclusions on the influence of vernacular teaching can be made from a dialectological perspective.

The question of reliability is a general challenge in any scientific treatment of empirical data, regardless of the problem of synchronicity. The mere fact that a linguistic interview (based on a wordlist) can never represent a situation in which speech is used naturally is an example of such general challenges to the reliability of language data. This is, again, a theoretical problem that comes with almost any linguistic research. However, the data used in this study, seem to be as trustworthy as the outcome of an elicitation by means of a wordlist can be. As previously mentioned, the majority of the data have been elicited by Wilhelm J.G. Möhlig in the 1970s and 1980s. These data have not been seriously questioned by any scholar investigating Central Kenya Bantu ever since. Even the most recent publications on the subject, e.g. Kanana (2011), do not generally contest Möhlig's findings from the 1970s, which can, consequently, even today be viewed as most reliable.

All empirical data are presented in the appendices A and B, starting with the different phoneme systems, followed by the lexical data. The procedural details of converting raw language data into rendered data compatible with systematic comparison are discussed in the following chapter on the dialectological methods used in this study.

2. Methods of Analysis

This chapter is meant to present the methodological background of this dissertation. The linguistic data of the Central Kenya Bantu Languages are analyzed by the application of various dialectological procedures. First, some general aspects of the dialectological approach will be discussed (see section 2.1), followed by a review of the method of dialectometry, a means of systematically assessing dialectal proximity (see section 2.2). Finally, the qualitative methods that are used in this study in order to distinguish inherited from borrowed linguistic material will be presented (see section 2.3). The discussion of how the dialectological methods are applied to the empirical language data of this study is reserved to chapter 3.

2.1 The Dialectological Approach in General

2.1.1 The Sociolinguistic Aspect

Dialectology is often considered to be a sub-discipline of sociolinguistics, especially since the influential study by William Labov (1966) on the social significance of American dialects. Labov investigated synchronic language variation, such as the presence or lack of the phoneme /r/ in different dialects, and correlated his findings with social factors, such as age or gender. From this perspective on dialectology, it seems justified that this particular type of comparative language study is deemed part of a field called sociolinguistics. Dialectology has, however, another component, namely the investigation of spatial variation (Chambers and Trudgill 1994). In this study, the main objective is not to relate linguistic findings with social variables, such as age or gender. The dialectological investigation conducted in this study serves a different purpose: While agreeing with the classic dialectological approach of studying synchronic variation (across space), the aim of this study is to deduct insights on the diachrony of the languages under consideration. In other words, the approach applied here is divided into two parts, the synchronic (quantitative) and diachronic (qualitative) dialectological investigation. Insofar, the dialectological approach followed here is less sociolinguistic in nature, but should rather be seen as a contribution to the research of language history in Central Kenya. Thus, this study belongs to the field of comparative linguistics aiming at the investigation of linguistic history.

2.1.2 The Aspects of Synchrony and Diachrony

Linguistic variation is the basis of investigation for sociolinguistics in general and dialectology in particular. Both disciplines are mainly interested in synchronic variation as opposed to diachronic variation, that is the main focus of comparative language studies in the classic sense of historical linguistics. Synchronic linguistic variation in the canonical sense may be divided into (1.) diastratic, (2.) diaphasic, and (3.) diatopic variation (Coseriu 1980: 111, Berruto 2006: 193). Diastratic variation refers to the different speech varieties one might find within a specific community along the lines of social factors, such as status or class. The term diaphasic variation, in turn, describes the different ways of speaking that may be employed by individual speakers depending on the social situation they might find themselves in. Finally, diatopic variation refers to linguistic variation across geographic

space. The former two types of variation, diastratic and diaphasic, are beyond the scope of this study, as they are not accessible with the methods applied here, i.e. by data elicitation based on a wordlist (cf. Martinet 1954). Whereas the diatopic aspect, namely the comparative study of the different dialects of the Kenyan Highlands, is in the focus of this study.
Dialectal variation is a sub-kind of linguistic variation that may be described as diatopic, i.e. it denotes linguistic differences that can be observed across a geographic space. In general terms, we may say that spatial linguistic variation describes differences between dialects in regard to certain linguistic features. In a strictly structural sense, linguistic systems can only be identical or different (Weinreich 1953: 389). This claim, however, obscures the fact that languages may be different, yet similar, to each other. In classic lexicostatistical studies, such as Swadesh (1952) for example, the question of cognacy can only be answered by either 'yes' or 'no'. As Heggarty (2010: 311) remarks, such an approach has little "appeal to dialectologists, for whom traditional lexicostatistical counts typically offer too little resolution to discriminate usefully between the very closely related dialectal varieties that are their interest." Consequently, the methods applied here treat only phonological variation as a binary opposition. Lexical variation, in contrast, shows degrees of difference and is treated accordingly: lexemes may be either identical, or partially divergent, or fully divergent.

2.1.3 Dialects as Constituents of Languages

In a straightforward perspective, dialectology denotes the study of dialects by focusing on spatial variation and assessing the linguistic differences between dialects. It is, however, not an easy task to define what constitutes a dialect as opposed to the notion of language. As Chamber and Trudgill (1994: 3) remark, a dialect, in common usage, is understood as being a substandard form of language that is generally associated with groups lacking social prestige. A language is often considered to be standardized and as consisting of several dialects. This definition of a dialect as opposed to an official language is, however, mostly motivated socially and politically. In other words, such a distinction is arbitrary.
In order to distinguish the two concepts of language and dialect, different approaches have been proposed. Bossong (2008) describes that in the tradition of European dialectology, two types of criteria, internal and external, have been used in the attempt of making this distinction. Internal criteria refer to the language immanent distance between two varieties, based on phonological, morphological, and lexical similarities. Swadesh (1955), for example, considers two varieties to be dialects of one language if they share at least 81 percent of lexical material: If the linguistic distance between two varieties is relatively low, they might be considered to be dialects of one and the same language. This approach of focusing on internal, i.e. language immanent, criteria by measuring the linguistic distance between dialects may be subsumed under the concept of 'distance language' (*Abstandssprache*), a term coined by Kloss (1976). As Bossong (2008: 25) points out, however, it is unclear where the threshold values are in the measurement of linguistic distance. There seems to be a certain degree of arbitrariness involved when deciding how much linguistic inventory needs to be shared by two varieties in order for them to qualify as dialects of one and the same language (ibid.).
The external criteria that have been used by European dialectologists in the distinction between languages and dialects may be subsumed under Kloss' (1976) concept of 'reshaped language' (*Ausbausprache*). The idea behind this concept is based on sociolinguistic considerations, i.e. in which context a certain variety is used by its speakers. Bossong (2008: 26) argues that if a variety is not only used in the daily life of a peasant community but also in a scientific context, we are safe to assume that we deal with a full-fledged language as

opposed to a simple dialect. The alleged advantage of this line of thought, according to Bossong (ibid.), is that it does not rely on locally based political and social divisions, that are used by laymen to distinguish languages from dialects. It is, however, evident that in Kloss' (1976) concept of *Ausbausprache*, the politically motivated divisions, that are indeed often arbitrary, are simply substituted by a bias towards script culture. There seems to be no objective reasoning behind the argument that a linguistic variety can only be considered a language if its speakers engage in the composition of sophisticated prose or scientific writings. In short, defining a dialect as being opposed to a high prestige language with an official orthography and, at the same time, being somewhat rustic and, possibly, geographically restricted to isolated parts of the world seems unfeasible, especially in the African context.

Consequently, the two concepts of *Abstandssprache* and *Ausbausprache* are rarely used in the context of African dialectology. This shows that there exist some differences in the way the notion of dialect has been approached by representatives of the European tradition of dialectology on the one hand and by scholars interested in African dialectology on the other hand. The concept of distance language (*Abstandssprache*), for example, refers to the distance between a given variety and a recognized standard variety (Bossong 2008: 25). In Africa, however, such standardized languages are rare. The few standardized varieties that exist, e.g. colonial Swahili, are modern creations. Consequently, the idea that a dialect is merely a variety of a standard language does not hold true in the African context. Moreover, the degree a variety might have been reshaped or developed (*Ausbausprache*) to suit the needs of writers, such as journalists or scientists, does not apply for most African languages, as only relatively few dispose of script culture, not to mention an official orthography.

2.1.4 The Empirical Character of African Dialectology

It is evident that European dialectology has always taken a different perspective on dialects than linguists interested in African dialectology: In contrast to the standard-oriented view of the European tradition, African dialectology takes a perspective from below, i.e. the level of local speech lies in the central focus of empirical investigation. Therefore, the only properties that can be empirically ascertained are the linguistic properties representative of a specific geographically defined location. In view of this fact, Möhlig (2014: 3) proposes the concept of 'topolect': "A topolect is the linguistic information of speakers that are selected under the aspect of being representatives of a specific, usually small location within the wider area where the language or dialect under research is spoken." In the hierarchy of the language data and the survey of locations of elicitation proposed in figure 2 of section 1.3, the topolect would be situated above the idiolect and below the concept of dialect.

In this context, the parameter of inter-intelligibility has to be discussed, since it has also been used by European dialectologists in the attempt of drawing a line between language and dialect. At a first glance, it seems reasonable to consider two varieties to be dialects of one language if their speakers can communicate with each other without much difficulty. However, it has become a general understanding among linguists that mutual intelligibility is not as straightforward as it appears. As Möhlig (1983: 213) points out, the factor of inter-intelligibility seems to be based on an individual's language experience and even mental abilities rather than the degree of variation between dialects. Coseriu (1980: 106) and Bossong (2008: 27) take a similar stand in this regard. Moreover, they show that inter-intelligibility may be asymmetric, for instance in the case of Spanish and Portuguese. The distance between these two languages is relatively low; the average Spaniard can hardly understand colloquial Portugese, while even unprepared Portuguese may understand Spanish

without much effort – inter-intelligibility in this case is asymmetric rendering this criterium to be of little use in the distinction between languages and dialects. Mutual intelligibility, it seems, is subjective as well as gradual and depends on an individual's attitude and effort.
This example from the Romance languages shows that it is difficult to distinguish the two concepts of language and dialect in a perspective from above. Linguists do, however, agree that a dialect is a linguistic variety as it is spoken within a more or less defined geographic region (Bußmann 2002: 162). Generally, a linguistic variety may be defined as "any particular kind of language which we wish, for some purpose, to consider as a single entity" (Chambers and Trudgill 1994: 5). The purpose of this study is the investigation of linguistic variation across space – therefore, I consider a dialect as a diatopic variety that shows some degree of linguistic proximity with other varieties in different geographic locations.

2.1.5 Dialects as Relational Entities

A dialect will always stand in relation to another unit, another lect. In other words, a dialect cannot be conceived without its relation to another dialect. Dialects usually show different degrees of proximity to each other. It is possible, for example, that the dialects A and B show a higher amount of similarity to each other than the dialects A and C. This kind of multiple relationships is not accounted for in classic models of language history, such as the family tree model. It is, however, recognized in this study in the multidimensional scaling of the dialectometrical results (see section 2.2.2).
Any speaker will recognize the fact that his or her own speech may differ substantially from that of others, even though they are considered to speak the same language and even the same dialect. The reason for this kind of discrepancy may depend on different factors, such as age, gender, or education. It is clear that any speaker has an individual way of speaking, i.e. his or her own idiolect. This fact is reflected in the language data: We may find that within the same location, i.e. a place where more than one informant was interviewed, more than one translations of a keyword may be attested. Obviously, the difference in speech between two next-door neighbors can hardly qualify as dialectal variation. However, it is evident that individual discrepancies increase when two more distant locations are compared. The differences are most extensive when, for example, the speech of individuals from the Kiambu dialect of Gikuyu and the Meru dialect of Imenti are compared.
In short, the following relational model may be proposed: At the very bottom of this hierarchy lies the *idiolect*, i.e. the speech of an individual. Above this unit, the above mentioned *topolect* is situated, followed by the *dialect*, i.e. a collection of individuals whose speech may be slightly different from each other, while similar enough to qualify as being typical of a specific region or community (cf. Weinreich 1953: 389). On top of these two categories, we may place the notion of *dialect cluster*: Such a cluster is defined as a group of dialects that are subsumed on the basis of the principle of dialectal proximity (see also 1.3).
The reason why two or more varieties are close to each other linguistically may be manifold: There are several possible explanations why two or more varieties show a relatively large degree of linguistic congruence. This has been a much debated subject in comparative linguistics in general and in the historical study of African languages in particular. In the literature, there exist opposing views on what is most important in the historical development of languages: While some authors have favored the genealogical approach to the description of linguistic relationships, others plead for a representation of language history that takes (areal) diffusion into account. We know today that both factors of inheritance and diffusion may play an equally important role in the historical development of a language. According to Aikhenvald and Dixon (2001: 1 ff.), congruence between linguistic varieties may be due to

universal tendencies, chance, diffusion, genetic retention, or parallel developments. In most languages, we are safe to assume, more than one of these factors are significant. Which one is most important, however, is language specific. This becomes evident, for example, when looking at loanwords in some African languages: In Tarifiyit Berber of Morocco, for example, almost 63 percent of loanwords can be identified, while Swahili shows an average of about 28 percent, and in Iraqw of Tanzania 14,5 percent are attested (values according to Tadmor 2009: 56 f.). In short, the question whether the lexicon and, of course, other domains of a language show much diffused material depends on the specific history of these languages.

Both genealogists and arealists use the same diagnostic tool when it comes to the comparison of languages – the differences between languages or the lack thereof. However, the historical interpretation of linguistic congruence differs depending on the respective approach. Genealogists and arealists alike see differences between related languages as the result of a language split; i.e. if two related varieties differ in respect to a certain feature, it is assumed that these two varieties diverged at a certain point in history. If, however, two languages concur in regard to a number of features, the interpretation of this fact may differ depending on the model used.

By following a strictly genealogical approach, the linguist might be inclined to attribute any agreement in language structure between two varieties solely to genetic factors (Möhlig 1980a: 239). In other words, the genetic tree model *a priori* dismisses any convergent phenomena, as it has no means of displaying such relations (cf. Ross 1997). The dialectological approach, in contrast, makes no such prior distinction between linguistic convergence and divergence: If two dialects concur in regard to a specific feature, in the dialectologist's eyes, this may be either due to common heritage or due to diffusion from one variety into the other.

A high amount of similarity may also be due to mutual influence by a third language – yet another factor not accounted for by the tree model but relevant, for example, in the context of Maasai and Swahili influence on Central Kenya Bantu. As the dialectological approach followed in this treatise is a merely synchronic means of analysis, there is no methodological possibility of prematurely dismissing one historical explanation or the other. The historical background, i.e. the diachronic relations between dialects and the question of inheritance versus contact, can only be revealed at a subsequent stage after a thorough qualitative analysis (see section 2.3).

In the previous paragraph, I argued that the family tree model provides no means of displaying convergent relations between languages. Due to this drawback, many linguists have expressed reservations towards this model. Even some of the four major African phyla, as they are normally taught in introductory courses on African linguists, have been increasingly put into question by various scholars, and alternative approaches to the history of African languages have been proposed in recent years, for example by Güldemann (2008).

In the past decades, the understanding of language history has benefitted from the theoretical debate on the modeling of language history and the methods of language classification. Ross (1997: 211) points out that the different models proposed throughout the history of language science may not generally be used in order to interpret the same set of data. Whether one uses the family tree model, a rhizotic model[5], or the wave model depends on the aim of the relevant study.

Based on a case study from the Central Papuan languages, Ross (1997) provides a consolidation of these three models by proposing the social network model, which offers a means of "encompassing the various kinds of SCE [speech community events] each model

5 The rhizotic model (in its extreme form) denies that languages descend from a single ancestral language; instead, it stresses the multiple sources, or 'roots', a language may have (Trask 2000: 288).

was designed to capture" (Ross 1997: 211). At the core of this model lies the notion of social networks, which describes a speech community as a network characterized by the intensity and multiplexity of its links (Milroy 1980). The speakers in this model are considered to be the nodes within the network. Linguistic innovations spread along the links of this network from speaker to speaker. If enough speakers adopt such an innovation, the result is a specific linguistic change.

The advantage of this particular approach is that – unlike most traditional models – it may account for a variety of speech community events. It, moreover, provides a framework in which different events of language history may be described in more detail than, for example, by the classic family tree model. Ross (1997: 212 f.) distinguishes three types of speech community events: (1.) language fissure, (2.) lectal differentiation, and (3.) language contact. The first event, language fissure, describes what is recognized by the traditional family tree model: the split of a language into two or more varieties when its speakers become geographically or socially separated from each other (usually relatively abruptly). Lectal differentiation, in turn, describes the progressive break-up of a so-called lectal linkage to form a group of separate languages – an event that usually entails the gradual geographic spread of speakers (rather than the abrupt event of language fissure), as it is normally depicted by the wave model. Finally, different types of language contact are also recognized in Ross' (1997) framework, as the fusion of two languages or the rejoining of a lectal linkage, i.e. events when the links of two or more networks are (re)established.

Each of these events entails a restructuring of social networks, i.e. the linguistic developments in a language have a social (extra-linguistic) counterpart. Language fissure is the result of the abrupt break-up of a speech community; this is followed by the reduction of social contacts in terms of the density and multiplicity of its links. In lectal differentiation, in contrast, the links within the network are not abruptly ruptured; the establishment of new settlements, for example, merely results in the spread of linguistic features and a general increase in structural heterogeneity. In contact situations, new social relations are established affecting the density, intensity, and multiplicity of the links in the relevant networks.

It is reasonable to argue that in many cases the modeling of language history needs to be speaker-oriented as opposed to an exclusively language inherent approach (which is in line with the dialectological view from below – see section 2.1.4). The comparative method, for example, has been dominated by a language-oriented view. It is based on the hypothesis that sound change is regular (Ross and Durie 1996: 13). Nevertheless, irregularities of change can be observed in any language; according to Ross and Durie (1997: 31), these may be best understood within a speaker-oriented framework. By setting the focus on the agents of linguistic change, i.e. the speakers, irregular forms can be explained by a number of factors that are connected to the motivations found among the speakers as well as to their position within the community. In order to understand language change, the motivations that affect a speaker's choice of adopting a linguistic innovation and the speaker's role in his or her social network need to be clear.

In general, any type of language change starts out as an innovation that spreads across the speech community from speaker to speaker. According to Ross and Durie (1996: 15 ff.), when explaining language change, both human and sociocultural factors need to be considered. The reason why an individual chooses to adopt a new variant may be manifold: Natural Phonology, for example, claims that speakers generally tend to weaken voiceless segments for ease of articulation, i.e. irregular forms may occur due to a specific disposition of the human speech organs. Communicative exigency, according to Ross and Durie (1996: 13), is another factor that influences an individual's choice of a specific variant, as, for example, speakers show a general tendency of avoiding homophony. The avoidance of regular forms due to social conventions, such as a taboo, may also result in the occurrence of

irregular forms. Finally, the adoption of borrowed forms, as Ross and Durie (ibid.) explain, is another possible source of irregular language change. In short, the motivations that underlie a specific change may be manifold, and it is important to note that language contact is merely one of many possible explanations of irregular language change.
The position a speaker holds within his or her social network influences how an innovation spreads throughout the speech community to eventually cause language change. Ross and Durie (1996: 21) argue that innovations are most likely to diffuse throughout a speech community if the network is relatively weak in terms of the density, intensity, and multiplicity of its links. If, in contrast, the network is relatively strong, innovations are less likely to spread enough to result in language change, as strong social ties entail social bonding and solidarity among the members of a network, which may result in the leveling of speech differences (ibid.). Those speakers who are less susceptible to such linguistic norm enforcement may become innovators, i.e. the initiators of language change (Milroy and Milroy 1985). They are often marginal to their local social network but may have weak and uniplex ties to outside communities, from where they may adopt a new variant (Ross and Durie 1996: 17). The early adopters, in turn, are central to the network and, consequently, influential in the spread of a linguistic variant within their community: By following the example of an innovator, early adopters come to take over an innovation; due to their central role in the network, other speakers may follow the example of the early adopters causing an innovation to spread enough to eventually become what linguists recognize as language change (Ross and Durie 1996: 15).
Consequently, if two or more varieties show agreement in regard to a specific linguistic feature, the two varieties must have undergone the same kind of language change. The goal of this study is to distinguish internal from external language change. Internal change refers to a situation in which speakers adopt an innovation, for example, by avoiding homophony or by simply aiming at an ease of articulation without there being any evidence of contact. External change, in contrast, denotes the adoption of a feature from a variety outside a speaker's own speech community as the result of language contact (based on bilingualism). In the literature on historical linguistics, the two cases above – internally and externally induced change – are usually described by the terms inheritance and contact. As alternatives, some scholars favor the terms "vertical" and "horizontal". The latter refers to any process that involves language contact, e.g. borrowing, homogenization, creolization (Haspelmath 2009, Hickey 2010). Vertical relations, in contrast, refer to form-meaning correspondences that have been transferred from a common meta-language.

2.1.6 The Dialectological Principle of Spatial Coherence

The dialectological approach followed in this study differs from the canonical views in European dialectology as well as from the traditional models used in comparative linguistics. One important aspect not mentioned thus far concerns the way the empirical language data of this study were elicited in a tightly-knit network of locations that leave no room for 'linguistic no man's land' (Möhlig 1974a: 41).
On the one hand, this is a question of reliability in regard to language data in general: If, for instance, only two geographically distant languages A and D are investigated and considered as being representative even for the intermediate varieties B and C, one could argue that claims are made about two varieties for which no empirical data exist (see also Möhlig 1979 for a discussion on the principles of test languages).
On the other hand, the adherence to the dialectological principle of spatial coherence serves another purpose: In the dialectological view from below, the central focus of investigation

lies on the empirically accessible speech varieties of a specific geographic location (topolects). By setting up a spatially inclusive and comprehensive network of locations we are able to carve out the dynamics that characterize the different communicational networks within Central Kenya Bant – a tightly-knit network of locations may, for example, reveal marked distribution of specific lexical items. The fact that a given item is highly restricted in distribution in dialect A and widespread in the adjacent dialect B may indicate that the relevant item was borrowed from B into A (provided that additional signs of borrowing can be found). The distribution of specific items may also provide clues on the genetic relation between two geographically distant dialects. We might find, for instance, that dialect A shows a specific item which is also attested in the geographically distant dialect E, while being absent in the intermediate dialects B, C, and D. In this case, it seems safe to assume that the congruence between A and E is based on shared innovation. If lexical diffusion between A and E were the case, we could expect to find at least traces of the relevant item in the intermediate dialects B, C, and D. Without adhering to the principle of spatial coherence it would be hardly possible to make such historical claims. In short, the regional coherence of the empirical data is an important dialectological principle – next to the perspective from below and the acknowledgment of both genealogical and areal relations.

2.1.7 Conclusion

In sum, the quantitative dialectological approach is a synchronic tool of linguistic analysis and, therefore, provides synchronic results. In other words, we may say that the data used in this study represent a 'snap shot' of the dialectal situation at the time of elicitation[6]. In order to obtain an insight into the historical factors that shaped the languages and dialects of Central Kenya Bantu, we must rely on an additional – qualitative – analysis, that distinguishes inherited from diffused linguistic material. The outcome of the quantitative analysis, i.e. the application of the method of dialectometry, on its own only shows how similar the different varieties are to each other synchronically (i.e. it provides a dialectological survey). The principles of this method are discussed in the following section 2.2. The basic principles underlying the qualitative analysis of the language data are, in turn, discussed in section 2.3.

2.2 Quantitative Dialectology: The Dialectometrical Analysis

The empirical language data are analyzed quantitatively by application of the dialectometrical method, a statistical means of assessing dialectal proximity. The results of this procedure are displayed in a two-dimensional space by means of multidimensional scaling. In this section, I provide a general overview of the basic principles of dialectometry (section 2.2.1), followed by a discussion of the method of multidimensional scaling (section 2.2.2). Finally, I show how a system for the comparison of all phonological and lexical data is set up, i.e. how the raw language data are converted into rendered data (section 2.2.3).

6 See also 1.3 for a discussion on the synchronicity of the empirical language data.

2.2.1 The Basic Principles of Dialectometry

Dialectometry refers to a method of measuring dialectal proximity by statistical means. The basis of this procedure are linguistic items which are subject to the pair-comparison of all dialects under scrutiny. The goal is to identify areas of relatively low linguistic variation. It is investigated which varieties share a relatively large amount of their linguistic inventory and which varieties, in contrast, do less so. In other words, it is assessed how closely the varieties are affiliated with each other in terms of their phonological and lexical inventories.

Dialectometry was first established in the study of European dialects by Séguy (1973), who investigated the dialects in the French province Gascogne. Another representative of this particular sub-discipline of dialectology is Goebl (1982, 1984), one of the leading dialectologists in the study of the Romance languages. In the study of African languages, the method of dialectometry was first developed by Möhlig (1974a) and applied to the investigation of the linguistic affiliations among the Bantu languages of the southern and eastern foothills of Mount Kenya (Eastern Kirinyaga dialects). In Heine and Möhlig (1980), the method was applied to other Kenyan languages outside the highlands. The term 'dialectometry' was later coined for this particular method by Guarisma and Möhlig (1986) following an oral suggestion by André Martinet. In more recent publications, such as Möhlig (1997, 2000) and Full (2006), the method was applied to the study of various African languages. Full (2006) provides a concise overview of the different traditions of dialectometry.
The basic principle of this method is the procedure of pair-comparison of different dialects. This means, that the linguistic inventory of any dialect is compared to the inventories of all other dialects. For example: Dialect A is compared to the dialects B, C, and D. Dialect B, in turn, is compared to the dialects C and D. Dialect C, again, is compared to dialect D. By way of systematic comparison, it is evaluated how much is shared by these varieties in terms of their linguistic features. The following example may serve to illustrate the basic principles underlying dialectometrical analysis:
Let us say, the dialects A, B, C, and D are to be compared regarding the presence or absence of a specific linguistic feature *x*. Table 5 below shows the distribution of feature *x* in the fictitious dialects A, B, C, and D:

	Dialect A	Dialect B	Dialect C	Dialect D
feature *x*	+	-	+	-

Table 5: Distribution of feature x

The table indicates that feature *x* is attested for the dialects A and C, while it is absent in the dialects B and D. In dialectological terms, the above table shows an isogloss that separates the dialects A and C from the dialects B and D. In order to evaluate – or rather: measure – this variation, the concurrences of feature *x* across the lines of the fictitious dialects are counted and a similarity matrix is set up. If two dialects are identical in regard to *x* (both show either the presence or absence of *x*), the relation between these two varieties is assigned the identity value of one. If two dialects, in contrast, diverge, the relation between them is counted as zero. Accordingly, the affiliations between the dialects A, B, C, and D in regard to feature *x* are represented in the following similarity matrix:

Dialect A	0			
Dialect B	0	0		
Dialect C	1	0	0	
Dialect D	0	1	0	0
	Dialect A	Dialect B	Dialect C	Dialect D

Matrix 1: Similarity Matrix showing the affiliations between A, B, C, and D in regard to feature x

Matrix 1 resembles the dialectometrical result for feature *x* in the four fictitious dialects. It indicates how similar the four varieties are to each other as far as feature *x* is concerned. The comparison of any other feature follows the principle shown above; the sum of all similarity matrices renders the overall dialectometrical result. This example may suffice to explain the basic procedure of dialectometrical analysis. It will become evident below that the systematic evaluation of identity differs depending on the linguistic domain under investigation: Phonological dialectometry follows the binary principle described here, while a more elaborate scale is required for the assessment of lexical differences (see section 2.2.3).
The lexical database comprises 125 locations in all of Central Kenya that are compared with each other. Since in total 496 lexical items are compared for 125 locations (idiolects), the data table comprises 496 x 125 = 62,000 cells. The dialectometrical results, i.e. the lexical similarity matrix, is considerably smaller, however, still consisting of 125 rows and the same number of columns (125^2 = 15,625 cells).
Based on the literature and the data at hand, Central Kenya Bantu is divided into a total of 20 dialects for the measurement of phonological variation, broadly based on Möhlig (1974a) and Heine and Möhlig (1980). All the geographic locations within the boundaries of such a dialect entity are identical in their phonological structure. Therefore, the database for the phonological dialectometry of Central Kenya Bantu comprises 20 dialects to be compared, whereas for the comparison of the lexical data no such prior division has been made.

2.2.2 The Method of Multidimensional Scaling

In consideration of the large amount of data, the dialectometrical results must be subject to an additional analysis in order to display the statistical outcome in a comprehensible manner. In this study, the method of multidimensional scaling is used for this purpose. In the following paragraphs, I discuss this procedure commonly referred to by the cover-term 'data-mining', which denotes the computational process of discovering patterns in large data sets – in this case, areas of relatively low linguistic variation. The method of multidimensional scaling has never been applied in the context of African dialectology and provides an appropriate means of visualizing linguistic affiliations in general.
The output of dialectometrical analyses consists of matrices that indicate how similar dialects are to each other ('similarity matrices'). These arrays of numbers depict the relations between dialects, not unlike distance matrices most familiar from geographic road maps. However, while a similarity matrix represents the *proximity* between locations, a distance matrix depicts the *distances* between locations. In the former case, high values represent low distance, while in the latter, they represent high distance. A similarity matrix may be converted into a distance matrix by substituting the identity value in each cell with the relevant reciprocal value, i.e. a number which yields one when multiplied by *x* (written as 1/x). The following figure is an example of a distance matrix representing the mileage between the five largest cities in Germany:

Berlin	0				
Frankfurt	548	0			
Hamburg	289	493	0		
Köln	576	195	427	0	
München	586	392	776	577	0
	Berlin	Frankfurt	Hamburg	Köln	München

Matrix 2: Distances between five German cities (in km)

By means of the method of multidimensional scaling[7], the distance matrix above may be visualized, so that the geographic distances between the five German cities in matrix 2 can be displayed in a comprehensible manner. The outcome of this procedure is as follows:

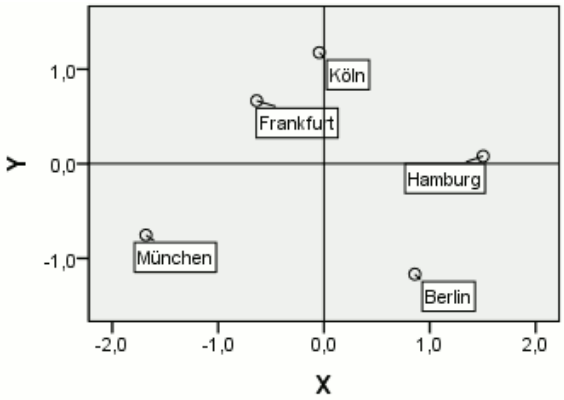


Figure 3: Multidimensional scaling of matrix 2

Figure 3 depicts the geographic distances between the five German cities under consideration as they are represented in matrix 2 above. Thereby, the points in figure 3 are located in such a way that for each city the distance to any other city in the above distance matrix is represented fairly accurately.

It is important to note, however, that in some cases the multidimensional scaling of the linguistic distances within Central Kenya Bantu may result in a slight blurring of the results. If dealing with a large distance matrix, such as the phono-dialectometrical result that shows 20 dimensions, the conversion into two dimensions can only yield an approximation of the actual distances represented in the matrix (especially if some dialects are substantially different from the rest). This may be compared to a kitchen table with more than three legs that are all different from each other in length. Such a table will always be tilted, unless those legs that are too long are sawed off, so that they are leveled with the other table legs. This manual procedure is similar to the process of projecting a distance matrix onto a two-dimensional space. In the context of multidimensional scaling, this process of 'sawing off' will, however, result in the loss of accuracy (see Borg and Groenen 2005 for a full discussion of this statistical method).

Nevertheless, multidimensional scaling is an appropriate method for the purpose of dialectological research, as it comprises a straightforward means of displaying the linguistic

7 The source codes required in order to carry out the relevant operations in *R* are provided by courtesy of Matthias Trendtel (Bundesinstitut für Forschung, Innovation & Entwicklung, Salzburg, Austria). The electronic implementation of dialectometrical calculations are carried out in this study with a software combination of *OpenCalc* and the statistics programme package *R* (see Kolenikov et al. 2010 for a description of the latter).

proximity between different language varieties. The method of dialectometry relates all dialects to each other rather than relating each dialect to a given reference point. This is accounted for in multidimensional scaling, as this method does not depict the relations between a single standard language and its relatives (as the family tree model would) but rather shows the relative distances between all varieties under concern. Thereby, it is recognized that dialects may show different degrees of proximity to each other, i.e. the dialects A and B may be particularly close but the dialects A and C may be less so. In the family tree model, fin contrast, the degree of proximity cannot be displayed; insofar, the multidimensional scaling seems to be an appropriate alternative to the traditional models in depicting linguistic affiliations between dialects.
By providing an immediately comprehensible overview of the linguistic distances between different dialects, the method of multidimensional scaling enables us to identify areas of relatively high linguistic homogeneity. These clusters of low variation are the main interest in this study. One might ask why the method of dialectometry is not used in this study in order to draw dialectal boundaries within the Central Kenya Bantu complex. The answer to this question is two-fold:
(1.) The interest African dialectology takes in dialect centers rather than boundaries sets it, once again, apart from the European tradition of dialectology. In Europe, bundled isoglosses are frequent and often enable the linguist to draw clear-cut lines between different dialects, for instance in the context of the Franconian dialects of Germany (e.g. Wolf 1983). In contrast, in the Africanist's experience, bundled isoglosses are rare in the Bantu area in general and in the lower parts of Central Kenya in particular (cf. Möhlig 1980a on the problem of defining dialectal boundaries in Bantu). It is, therefore, hardly possible to classify the different dialects of Central Kenya Bantu along the lines of isogloss bundles.
(2.) This study aims at deducting historical claims from its focus on synchronic language data. The multidimensional scaling reveals which areas in Central Kenya are linked by relatively strong linguistic ties – the main interest of this study are areas of low heterogeneity: In order to throw light on the historical processes – inheritance or contact – that resulted in the emergence of such clusters, these areas, naturally, need to be at the center of our attention. The dialects boundaries are, in contrast, of minor importance for the purpose of this study. It is true, however, that the multidimensional scaling of the dialectometrical results shows, for example, that the Western dialects of Central Kenya Bantu are lexically relatively distant from Kamba, i.e. the multidimensional scaling reveals some sort of linguistic 'gap' between these two clusters (see section 3.2.1). Consequently, we may say that the entire Central Kenya Bantu complex does not constitute a classic dialect continuum but could rather be seen as a continuum or a conglomerate of 'dialect centers' or clusters.
The main interest of this study are the relatively homogeneous areas displayed by the procedure of multidimensional scaling. These are the basis of investigation in the qualitative part of this study, whose principles are laid out in section 2.3, preceded by a discussion on how the empirical language data are set up in a system for comparison in the following section 2.2.3.

2.2.3 Converting Raw Language Data into Rendered Language Data

All Central Kenya Bantu languages dispose of a total of 14 vocalic phonemes. There are, however, no systematic correspondences between the different dialects in regard to the vowel systems. This has been recognized, for example, by Möhlig (1974a). The reason why no such correspondences can be identified on the vocalic level are unclear. As only the consonant systems show systematic variation, the vowel systems are non-diagnostic from a

dialectological point of view. All languages and dialects of Central Kenya Bantu show seven vowels, each attested as a long and a short variant[8]:

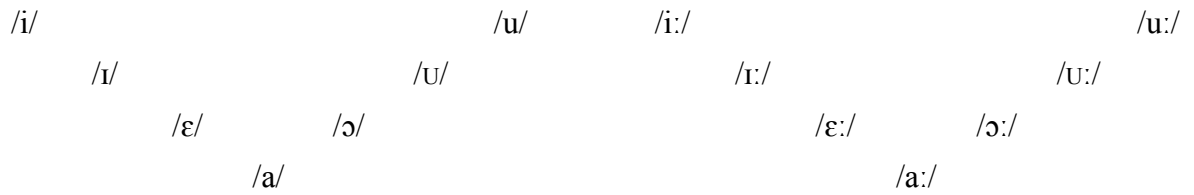


Figure 4: The vowel system of Central Kenya Bantu

In contrast to the vowel systems, the languages and dialects of Central Kenya Bantu show substantial differences to each other on the phonological and lexical level. For instance, when comparing the phoneme systems of Embu and the Meru dialects in the northern language area, one finds that Meru disposes of 22 phonemic consonants, while Embu shows a total of only 17 consonants. Such a difference can be described as *phonological*, i.e. Embu and Meru show differences in regard to the size of their respective phoneme *systems* (number of contrasts).
Moreover, the comparison of Embu-Mbeere and Meru reveals *phonetic* differences: The phoneme /c/, for instance, is realized as a voiced alveo-prepalatal affricate [dʃ] in the Imenti-dialect of Meru, while Embu shows a voiceless prepalatal fricative [ʃ]:

	Meru (Imenti-Dialect)	**Embu**
/c/	[dʃ] = voiced alveo-prepalatal affricate	[ʃ] = voiceless prepalatal fricative

Table 6: Phonetic realization of /c/ in Meru and Embu

Next to the phonological and phonetic differences, the two dialects under concern show an additional type of discrepancy – a difference based on *phonological rules*: In front of the high vowels /i/ and /u/, Embu realizes /c/ as a voiceless postalveolar affricate [tʂ], whereas in Meru no such phonological rule applies to the phonetic realization of /c/:

	Meru (Imenti-Dialect)	**Embu**
/c/ _/i,u/	[dʃ] = voiced alveo-prepalatal affricate	[tʂ] = voiceless postalveolar affricate

Table 7: Phonetic realization of /c/ _/i, u/ in Meru and Embu

On the phonological level, the Central Kenya Bantu languages differ in terms of the (1.) size of their phoneme systems as well as in regard to (2.) phonetic realizations and (3.) phonological rules. In order to systematically measure these differences in accordance with the dialectometrical principles laid out above, an adequate system needs to be set up. This is carried out on the basis of *recurrent sound correspondence.* In formal terms, recurrent sound correspondence may be defined as follows:

8 The notation of phonemes follows Möhlig (1974a: 76), who based his transcription on Westermann's and Ward's (1933) Africa alphabet, in some cases complemented on the basis of the IPA system.

Dialect A		**Dialect B**
feature *x*	=	feature *y*

Figure 5: Recurrent sound correspondence

Recurrent correspondence describes that two (or more) dialects show some sort of recurrent agreement in regard to a specific feature. The first procedural step in dialectometry is to identify recurrent correspondence, such as in the following example:

020 neck	**nk**iːngɔ	Chuka, Meru, Tharaka
	ngiːngɔ	Gikuyu, Embu, Mbeere, Kamba
045 heart	**nk**ɔrɔ	Chuka, Meru, Tharaka
	ngɔrɔ	Gikuyu, Embu, Mbeere
	ngɔɔ	Kamba

*Table 8: 'neck' and 'heart' in Central Kenyan Bantu (establishing series *NK)*

Table 8 shows that the voiceless prenasalized velar plosive [nk] in Chuka, Meru, and Tharaka recurrently corresponds to the voiced variant [ng] in all other varieties (the difference can be described by the contrastive features [+voice] versus [-voice]). In dialectometry, two instances of such correspondence between lexical items are considered to be proof of recurrence (Möhlig 1986). Consequently, if two cases of recurrent correspondence can be identified, a correspondence series may be set up, for example the series *NK:

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
	Feature	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*NK	[voice]	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+
realized as		ng	ng	ng	ng	ng	ng	ng	ng	nk	nk	nk	nk	nk	nk	nk	nk	nk	ng	ng	ng

*Table 9: Correspondence series *NK*

The measurement of the differences shown in this correspondence series are carried out according to the dialectometrical principle of pair-comparison described in section 2.2.1; it is based on the method of feature analysis (Jakobson et al. 1952, Chomsky & Hall 1968).
In dialectological terms, the series *NK represents an isogloss that divides Central Kenya Bantu into two groups, approximately along the course of the river Thuci. The Western dialects as well as Embu-Mbeere and Kamba, table 9 shows, have no segment [nk] at their disposal but use the voiced variant [ng]. The latter segment, however, also occurs in another series *NG, that is attested to by the following lexical items and represented by the segment [ng] all throughout the group:

002 head	kɪ.ɔ**ng**ɔ	all of CKB
030 back (of body)	mʊ.gɔ**ng**ɔ	all of CKB except for
	mʊ.ɔ**ng**ɔ	Kamba

*Table 10: 'head' and 'back' in Central Kenya Bantu (establishing series *NG)*

The juxtaposition of the two series *NK and *NG, in turn, shows that in the Western dialects, Embu-Mbeere, and Kamba the two series merge, which accounts for the fact that the phoneme systems of these varieties are smaller than, for instance, the system of Meru:

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
	Feature	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathira**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*NK	[voice]	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+
*NG	[voice]	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

*Table 11: Correspondence Series *NK and *NG*

A difference in phonological rules, again, is accounted for in this analysis by setting up according correspondence series – for example, in the case of Embu, the only variety to show a fricative realization of /mb/ after the high vowels /i/ and /u/:

		WESTERN						EMBU/ MBEERE			NITHI			MERU			THARAKA		KAMBA		
	Feature	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathira**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
*MB _/i,u/	[stop]	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+

*Table 12: Correspondence Series *MB_/i,u/*

In this study, 39 correspondence series have been established on the basis of recurrence. The method of feature analysis provides a structural tool for the comparison of systematic differences on the phonological level (see section 3.1.1). The assessment of lexical differences requires a more elaborate scale, i.e. a tertiary distinction between (1.) divergent, (2.) partially divergent, and (3.) identical forms rather than the binary opposition reflected in the feature analysis of the sound systems (see section 3.2.1).
In order to render the lexical data compatible for dialectometrical analysis, each word form listed under a specific keyword is assigned a Roman letter (see appendix B). For example, under the keyword *liver*, three words are attested, all distinct from each other and, therefore, assigned a different capital letter:

048 liver

1.	ɪ.tɛma	A	1-26, 31-38, 40-97	all of CKB except for
2.	kɪ.gɔːri	B	27-30, 35	Chuka, Mbeere (35)
3.	ini	C	98-105	Western

Table 13: Example of the synopsis for the keyword 048 liver

Table 13 shows that the notion of *liver* is expressed by three different words. Form A prevails in the varieties Imenti, Nkubu, Miutini, Igoji, Mwimbi, Muthambi, Embu, Mbeere, Tharaka, and all Kamba dialects. Form B, in contrast, is only attested in Chuka and one location in Mbeere, while the western dialects of Gikuyu, Ndia, and Gichugu all use form C to denote this concept. All are considered fully divergent to each other.

In many cases, as can be expected for members of one language family, the different varieties show word forms which are similar to each other, yet varying in terms of phonology or morphology (partially divergent). If such obviously cognate word forms occur, they are assigned with the same Roman letter followed by an Arabic number in lowered script. The elicitation of the keyword *mouth*, for example, yields the following results:

015 mouth

1.	ka.ɲua	A_1	1-33, 35, 40-44	all of CKB except for
2.	ka.nua	A_2	34, 36-38, 98-105	Embu (34), Mbeere (36-38), Western
3.	ka.ɲwa	A_3	45-97	Kamba

Table 14: Example of the synposis for the keyword 015 mouth

All three forms in table 14 are related to each other; they differ slightly and all go back to the same Common Bantu item *-nù̱à C.S. 1379. Since they are phonologically divergent, they are assigned different characters A_1, A_2, and A_3. The same holds for word forms which show morphological or accumulated (phonological *and* morphological) divergence.
In some cases, there are word forms to be found in the synoptic lists of appendix B that are formally different but are, nevertheless, treated as identical items. These cases show variation that is considered to be generally recurrent. In order to prevent data inflation in the dialectometrical calculations, i.e. measuring the same phonological difference over and over, such items are subsumed under the same Roman letter and Arabic number. The term data inflation in this context refers to the fact that all recurrently occurring formal differences are taken into account in the phonological analysis and, consequently, need not be considered from a lexical point of view. For example, the keyword *to dream* yields the two forms *-ɔ:ta* (Kamba) and *-rɔ:ta* (all other Central Kenya Bantu languages). The two forms are subsumed under the same letter A as both relate to Common Bantu *-dóót- C.S. 672. The Common Bantu segment *d is generally deleted in Kamba (i.e. reduced to zero), while it is reflected as /r/ in all other varieties:

(1) CB *-dóót- C.S. 672 > A *-rɔ:ta* all of CKB except for
> A *-ɔ:ta* Kamba

All regular items showing /Ø/ in Kamba in a position where the other languages show /r/ are treated as identical in the lexical analysis, as this kind of difference is already taken into account by phonological dialectometry. The variation between /Ø/ and /r/ is not a lexical difference per se, as the one shown in table 14 above, but rather based on recurrent (and, in fact, regular) sound correspondence. It is, therefore, to be distinguished from the examples in table 14 under the keyword *mouth*. In that case, the difference between the alveolar nasal [n] and the palatal nasal [ɲ] is not recurrent. No other lexical item, apart from *mouth*, shows a correspondence between, for example, Embu [n] and Kamba [ɲ]. The recurrent correspondence between /Ø/ in Kamba and /r/ in the remaining varieties is, in contrast, attested to by almost one hundred lexical items (see appendix A).
Any recurrent variation, even if it is not due to regular derivation from a common meta-language is treated accordingly – including instances that attest to recurrent correspondence based on language contact. For example, as Kamba has lost Common Bantu *d and, therefore, has no means of incorporating any loanwords that show /r/, it generally tends to replace /r/ with /l/ in such cases. This is evident in Swahili loanwords, e.g. the keyword *road*: Most varieties use the Swahili word *barabara* to denote the concept of 'road'. Kamba shows *βalaβala*, while Tharaka, for example, shows *βaraβara.* In the relevant synopsis, the two

words are subsumed under the same letter A to represent the fact that the variation /l/ vs. /r/ between Kamba and the rest of Central Kenya Bantu is recurrent, i.e. attested in a vast amount of elicited items and represented by the phonological series *R_3.
In short, whether due to a regular sound shift such as Common Bantu *d > /Ø/ in Kamba or due to contact (Swahili /r/ > /l/ in Kamba; Swahili /r/ > /r/ in Gikuyu), recurrent variation is generally disregarded in the lexico-dialectometrical analysis to prevent data inflation – since formal recurrence is taken into account in the phono-dialectometrical calculations. In all cases where formally divergent forms are subsumed based on recurrence, the relevant correspondence series, which the decision to subsume these items is based on, are listed below the relevant synoptic list in the lexical data of appendix B.
The above paragraphs show how the raw phonological and lexical data are set up in a system that enables us to assess the differences between the languages and dialects of Central Kenya Bantu. As pointed out, the quantitative analysis yields synchronic results. Combined with the method of multidimensional scaling, the dialectometrical analysis reveals a number of linguistically homogeneous areas in the region. In order to investigate how these clusters of relatively low linguistic variation have emerged historically – by way of inheritance or language contact –, a qualitative analysis of the language data is required.

2.3 Qualitative Dialectology: Inheritance versus Contact

If two or more varieties show a relatively high degree of congruence, there is a number of historical explanations: Apart from universal tendencies, chance, and parallel development, the varieties under concern may show agreement either because of shared innovations or because of diffused linguistic features. In other words, if two or more varieties agree in respect to certain features, we are safe to assume, that they must have undergone the same kind of language change. In general terms, such change can either be induced vertically or horizontally. The former refers to shared innovations that have been inherited (i.e. transmitted from generation to generation), while the latter refers to contact induced changes. The different terms listed here may be subsumed as follows:

Language change induced	vertically	horizontally
	internally	externally
	inheritance	contact
	shared innovation	borrowing / diffusion

Figure 6: Inheritance and contact in language change

In this section, I show how shared innovation may be distinguished from diffused features both on the phonological and the lexical level. After a general discussion of language change (section 2.3.1), I provide an overview of the parameters that are used in this study to identify diffused linguistic material and, thereby, distinguish inheritance from contact (section 2.3.2).

2.3.1 Inheritance and Contact in Language Change

In simple terms, the notion of language change describes the modification of linguistic elements and language systems through the course of time (Bußmann 2002: 638). In

historical linguistics, however, there are different opinions on how language change ought to be viewed. Authors adherent to the acquisitionist perspective set their focus on individual variation and the question of how it comes about (Paul 1880, Chomsky 1965), while others require change to be common to all members of (a subgroup within) a speech community to qualify as such – anything less is merely considered individual variation, not change (Weinreich et al. 1968). Depending on the respective view on language change, there exist different opinions on how contact-induced change is to be defined: From the acquisitionist perspective, contact-induced change denotes a situation in which an individual acquires a linguistic element based on his or her bi- or multilingualism. In contrast, contact-induced change may also be defined as a situation in which a whole (sub)group acquires a speech habit due to bi- or multilingualism (Lucas 2015: 521).

In section 2.1, I referred to Ross' (1997) speaker-oriented social network model, which sets its focus on the agents of language change – the speakers. In this respect, the social network model is in line with the dialectologist's view from below. In this framework, any language change is considered to start out as individual variation. This means, that a single speaker begins to acquire a certain innovation which is, then, adopted by others, eventually causing change in the speech habit of a group of speakers. If we find that a group of individuals, such as the speakers of dialect A, share a specific language feature that is not observed in the dialects B and C, we can conclude that the speakers in A must have undergone the same language change (or, in fact, have been excluded from a change common to only B and C). It is important to note in this context that the distinction between individual variation and language change is not as clear-cut as the introductory remarks of this section may suggest. Croft (2006) uses the term "propagation" in order to describe the fact that any change starts out as an innovation that is (horizontally) transmitted throughout the speech community. When enough speakers come to adopt a specific lexeme, for example, it eventually becomes part of the general lexicon and is then transmitted vertically from generation to generation. It is, however, unclear how many speakers have to adopt a specific innovation in order for it to qualify as change. On the same note, linguists can never rule out that they are witnessing propagation in progress when they find that a number of speakers share a specific linguistic feature. In short, it is generally difficult to assess whether one deals with a case of innovation or change.

Nevertheless, the congruence between the speech habits of a given group of speakers must have a historical cause that involves the notion of language change. If the speakers of two dialects A and B agree in respect to a certain feature, the two dialects seem to be historically connected – either through a genealogical or a contact-based relationship. In other words, the two dialects must have undergone the same kind of language change, which can either be induced internally or externally, as shown in figure 6 above. In order to distinguish internally from externally induced change, it needs to be clear what kind of impact language change can have on the linguistic domains – phonology and lexicon – under investigation in this study.

The phono-dialectometrical analysis systematically assesses variation in regard to (1.) the phoneme systems, (2.) the phonetic realizations, and (3.) the phonological rules that may apply in different dialects. If two dialects are close to each other on the phonological level, this means that they show a relatively high degree of similarity in regard to these three factors. In general, each of these factors may undergo internal and external language change, as the following examples show:

(1.) The size of a phoneme system, i.e. the number of contrasts, may be influenced both by internal and external language change. Internally, the amount of phonemes within a system may be enlarged due to a phonemic split or reduced due to the merger or loss of phonemes. A phonemic split describes a situation in which the allophones of a single phoneme are reanalyzed by listeners as separate phonemes (Hamann 2015: 249). In Old English, for

example, the segment [v] was an allophone of /f/, as the two words [li:f] 'live' and [li:vlic] 'lively' show. In the development from Old English to Modern English, [v] was reanalyzed as a distinctive phoneme /v/, yielding modern minimal pairs such as /laɪf/ 'life' versus /laɪv/ 'live' (Hamann 2015: 250).
The decrease of phonemes due to internal developments is shown in the following example from the Indian language Vedic. According to Sihler (2000: 44), the two segments *l and *r of Proto-Indo-European have merged to yield /r/ in Vedic, as the example (b) below attests to:

(2)	a) Phonemic Split (increase)	b) Phoneme Merger (decrease)
	2 Allophones > 2 Phonemes, e.g.	2 Phonemes > 1 Phoneme, e.g. *l, *r > r
	Old Eng. [li:f] 'life' – [li:vlic] 'lively'	PIE *p**l**neHti 'fills' > Vedic p**r**náti
	Modern Eng. /laɪf/ 'life' – /laɪv/ 'live'	PIE *bh**r**to- 'carried' > Vedic bh**r**tá-
	(Hamann 2015: 250)	(Sihler 2000: 44)

The number of contrasts within a given phoneme system may also be affected by external language change. The size of the system may be enlarged by the incorporation of a loan phoneme, i.e. a segment that did not exist in the borrowing language prior to contact with the relevant donor language (Hamann 2015: 250). This is evident in German, where only recently the English segment /ɛɪ̯/ has started to occur in new loans, such as *Email* or *Homepage*. Older English loans in German, such as *Spray* or *okay*, do not show the diphthong above but were rather integrated into the German sound system by the use of the inherited vowel /e/, as in [o.'ke:] 'okay'.
In contrast, in some dialects of Central Kenya Bantu, external change seems to have resulted in the reduction of distinctive phonemes, i.e. a phoneme merger under contact. A merger, according to Hamann (ibid.), denotes the collapse of two phonemes into one category. This seems to be the case, for example, in Embu-Mbeere and Kamba, where the two correspondence series *NK and *NG collaps, i.e. both are represented by the same segment /ng/ in these varieties:

(3)	a) Loan Phoneme (increase), e.g.	b) Merger under Contact (decrease)
	recent English loans in German:	/nk/ > /ng/ in Maasai (Heine 1980)
	> /ɛɪ̯/ in *Em**ai**l*, *Homep**a**ge* vs.	*NK realized as /ng/ south of Thuci
	/e:/ in *okay* [o.'ke:] (older loan)	River in Cenral Kenya Bantu
	(Hamann 2015: 250)	(my hypothesis, see 3.1.2)

(2.) The phonetic properties of a language may also be influenced by both internally and externally induced change. The following examples from Central Kenya Bantu may suffice to illustrate this claim. Example (4) shows that in the case of the keyword *black*, the dialects of Mwimbi and Imenti have both reflected the relevant Common Bantu item in the same way (shared innovation). Another instance, the keyword *to hear*, attests to divergence in regard to vowel quality. The following example shows (a) retention of a specific feature versus (b) linguistic divergence:

(4) a) Shared Innovation

590 black CB *yi̱dù C.S. 2037

> *-iru* Mwimbi & Imenti

b) Divergence

554 to hear CB *yi̱gu̱ C.S. 2043

> ***-i**:gwa* Imenti

> ***-ɪ**:gwa* Mwimbi

The same effect can be observed in external language change: In some cases, mutual borrowing leads to the congruence of two varieties; in other instances, parallel borrowing affects the phonetic properties, as the following two examples of Swahili loans. In the case of the keyword *rice*, both Mwimbi and Muthambi have borrowed the Swahili source word in the same manner, while the two varieties disagree in the borrowing of the Swahili source word for the keyword *shorts*:

(5) a) Mutual Borrowing

408 rice Swahili *mchele* > *mʊ.cɛ:rɛ*

in Mwimbi and Muthambi

b) Parallel Borrowing

415 shorts Swahili *suruali* >

*curua:r**ɪ*** Mwimbi

*curua:r**i*** Muthambi

(3.) Phonological rules may also be both inherited and diffused. Most American dialects of English, for example, agree in the fact that the voiceless alveolar plosive /t/ is realized as a tap when positioned between a stressed and an unstressed vowel, as the American pronunciation of words like 'butter' [ˈbʌɾɪ] and 'notable' [ˈnoʊɾəbl] shows. There is no indication that the following phonological rule is the result of diffusion; it rather seems to be a shared innovation in most dialects of American English:

(6) /t/ → [ɾ] / [+vowel, +stress] _ [+vowel, -stress]

Campbell (1996: 101) lists a number of cases which show that phonological rules may be transferred horizontally from dialect to dialect. Within the Mayan language family of Central America, for example, there exist two distinct subbranches, the Mamean and the Quichean sugroups. The Mamean languages obey a rule which palatalizes velars when followed by uvulars (e.g. k'aq > kʸ'aq 'flea'; ke·X > kʸ·eX 'deer'). This rule, as Campbell (1977) argues, was diffused from the Mamean languages into several adjacent dialects of the Quichean subgroup.

All of the above examples show that phonological, phonetic, and rule-based congruence between different varieties can be due to both inheritance and diffusion. In other words, inheritance and contact may play an equally important role in phonological change. The same holds true for lexical change. The two examples (4) and (5) above show that lexical congruence may be based on both shared innovations and diffused items.

One of the main goals of historical linguists is to distinguish inherited from diffused linguistic material. In the history of comparative linguistics, especially before the 1990s, various scholars have attempted to find out whether diffusion is governed by linguistic constraints on what can and cannot be transferred. According to Lucas (2015: 531), however, the majority of today's historical linguists agree with Thomason and Kaufman (1988: 14) that "as far as the strictly linguistic possibilities go, any linguistic feature can be transferred from any language to any other language."

The understanding that any language feature may be borrowed renders it difficult to distinguish between inherited and diffused items. We can never rule out that a specific word

is a loan or that any other linguistic feature has been borrowed. Therefore, the data refined according to the principles of structural linguistics do not suffice as basis for the qualitative analysis, whose goal it is to identify borrowed material and separating it from common heritage. Consequently, the correspondence series need to be supplemented by additional information, such as the number of lexical items that attest to each series. Moreover, a set of parameters is required that enable us to draw the line between inheritance and contact.

2.3.2 Parameters in Distinguishing Inheritance and Contact

I suggested in the previous section 2.3.1 that there is no widely agreed upon method of differentiating between horizontal and vertical language relations in a given instance of linguistic congruence. The question whether the congruence between two or more language varieties is due to common heritage or language contact is, in fact, a question of probability: We can only be safe to assume that contact is the source of a certain change if it is less likely that this change would have happened outside a specific contact situation (Thomason 2010: 32). At a first glance, this may seem to be an unsatisfying guideline in assessing whether language contact was at play in a certain instance; it does, however, show that in order to differentiate between inherited and diffused material, it is necessary to individually judge for each instance in the data base whether contact is a plausible explanation for the congruence of two varieties. In short, likelihood and tendencies play an important role in the process of identifying borrowed material.

It is clear that a mere look at the data refined according to the principles of structural linguistics, i.e. the individual correspondence series, does not suffice in the identification of borrowed material. In the context of such closely related languages as the Central Kenya Bantu group, examining an isolated correspondence series provides us with a specific isogloss that may, for example, separate dialect A from dialect B, while uniting the two dialects A and C. The phonological data within a correspondence series provide no information on the reason why some dialects concur and others diverge in respect to certain feature – there exists no structural key that would enable us to unlock the historical facts behind a particular correspondence series. The following examples may illustrate this claim:

By identifying recurrent sound correspondences, two series *R_1 and *R_3 have been established. The former is characterized by [ɾ] in Gikuyu, [ɽ] in Meru, as well as the lenition of the relevant segment in Kamba. The phonetic difference between the tap [ɾ] and the flap [ɽ] is small, defined by only one feature [+/- back]: in the articulation of [ɽ], the tongue is retracted, while [ɾ] is produced with the tongue in neutral position. In regard to Gikuyu and Meru, the series *R_3, in turn, is identical to *R_1. In Kamba, however, the series *R_3 shows the lateral approximant [l]. The two series may be described as follows:

Series	Gikuyu	Meru	Kamba
*R_1	ɾ	ɽ	Ø
*R_3	ɾ	ɽ	l

*Table 15: Series *R_1 and *R_3 in Gikuyu, Meru, and Kamba*

All of the sounds in table 15 are similar to each other in terms of articulation. As mentioned above, [ɾ] and [ɽ] are only distinguished by the feature [+/-back]. Following Maddieson and Ladefoged (1996), both sounds are described as [+stop], as in both cases, the tongue makes (short) contact with the upper part of the mouth. In the articulation of the lateral approximant [l], no such obstruction in the vocal tract occurs, and the air is allowed to flow freely; thus, [l]

is distinguished from [ɾ] and [ɽ] by the feature [-stop]. The important points here are that all sounds in table 15 are highly similar to each other and the differences attested in both series $*R_1$ and $*R_3$ are cross-linguistically unmarked. In fact, the variation between /r/ and /l/ is common and known under the term rhotacizm (Bußmann 2002: 570). The lenition of a segment, as attested in series $*R_1$ in Kamba, is also a frequent phenomenon in the world's languages (cf. Mayerthal 1982: 230). Consequently, the mere formalities described in the two series above are non-diagnostic in terms of language history.

In order to deduct a historical insight into the two series of table 15, additional information is required, i.e. the number of lexical items that attest to each series. The series $*R_1$ is established by a total of 45 lexical items, of which 29 relate to Common Bantu (see appendix A). Almost all of them show widespread distribution. The series $*R_3$, in contrast, is established by 37 lexical items, which appear to be less widespread than the attestation of $*R_1$. Only 12 go back to Common Bantu. The large number of widespread archaic forms in $*R_1$ suggests that the recurrent correspondence between Gikuyu /r/ and Kamba /Ø/ is based on vertical relations, i.e. CB *d is regularly reflected as /r/ in Gikuyu and /Ø/ in Kamba. When, in contrast, Gikuyu /r/ recurrently corresponds to Kamba /l/, this type of correspondence seems to be irregular, i.e. it seems to be based on horizontal relations.

In short, the number of lexical attestations within a specific correspondence series as well as their connection to Common Bantu may provide an indication whether a particular instance of correspondence is based on vertical relations (e.g. Gikuyu /r/ : Kamba /Ø/) or on horizontal relations (e.g. Gikuyu /r/ : Kamba /l/).

In some cases, the distribution of specific features may, additionally, help solve the question whether a specific instance of recurrent correspondence represents vertical or horizontal language relations. Again, this may be considered additional information that is not provided by the mere phonetic analysis of the linguistic features. In section 2.2.3, I showed that the western dialects of Gikuyu, Ndia, Gichugu as well as Embu-Mbeere and Kamba tend to a voiced pronunciation of pre-nasalized stops (e.g. /ng/), while Meru and Tharaka, for example, dispose of voiceless variants, such as /nk/. Again, from a merely phonetic point of view, this type of variation is unmarked. One might argue that varieties such as the Meru dialects or Tharaka have devoiced segments such as /ng/ or /nd/ in a 'natural process'. A natural process, according to Stampe (1973), is a means of overcoming articulatory difficulties. As voiced sounds are more difficult to articulate than voiceless sounds (considering the effort of vibrating the vocal chords), speakers are generally inclined to devoice these sounds in order to alleviate pronouncing (see Dressler 1984 and Krefeld 2001 for a further discussion of natural phonology). As natural processes normally affect an entire sound class, one could argue that the occurrence of all pre-nasalized, voiceless stops in Meru, for example, is due to devoicing. However, sonorization of voiceless segments is also a common phenomenon in the world's languages known as weakening.

The important point here is that the relevant segments in series such as *NK or *NT are very similar to each other, only distinguished by one feature [+/-voice]. From a purely theoretical point of view, the variation between /ng/ and /nk/, for example, may be the result of language change going either way, from voiced to voiceless or vice versa. Interestingly, however, all dialects that show only voiced segments are or used to be adjacent to Maasai territory. In Maasai, the voicing of pre-nasalized stops is described by Tucker and Mpaayei (1955) as well as Heine (1980), and it is laid out below in chapter 4 that a plausible contact scenario exists, which can explain the particular variation between /ng/ and /nk/. In this case, it is the geographical distribution of phonetic features, combined with additional linguistic and historical knowledge of Maasai, that enables us to solve the question of the historical background of pre-nasalized stops in Central Kenya Bantu.

This leads to what we may call 'soft' parameters in distinguishing vertical from horizontal language relations. In section 2.2.3, I defined the term recurrent correspondence as an instance in which a feature *x* in dialect A recurrently corresponds to a feature *y* in dialect B. This term, it is important to note, must not be confused with the notion of *regular correspondence*, as it is usually applied in the classic works of comparative linguistics (cf. Trask 1996). In historical linguistics, the term regular correspondence denotes a connection between two varieties based on genealogy, which may be formalized as follows:

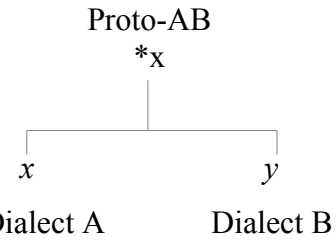


Figure 7: Regular Sound Correspondence

Figure 7 indicates that regular sound correspondence describes a genetic relationship between linguistic varieties. In this example, this means that the features *x* and *y* correspond to each other based on sound shift: *x of the proto-dialect AB is reflected as *x* in dialect A and as *y* in dialect B. This type of relationship is described in series $*R_1$: The Common Bantu segment *d is reflected as /r/ in Gikuyu and as /Ø/ in Kamba, thus the two synchronic segments correspond *regularly*.

Gikuyu /r/ and Kamba /l/ in series $*R_3$, in contrast, correspond *irregularly*, i.e. they do correspond recurrently, however, it is evident that this connection is not based on genealogy, but rather seems to be based on language contact. This is indicated by the fact that the series $*R_3$ is attested to by far less Common Bantu forms than the series $*R_1$. Additionally, the items that establish the series $*R_3$ are relatively restricted in distribution compared to the widespread attestations of $*R_1$.

In short, the number of attesting items as well as their distribution provides the first two parameters that enable us to distinguish between vertical and horizontal language relations in regard to specific instances of recurrent sound correspondence, which, consequently, may be understood as a cover term for both regular and irregular sound correspondence:

RECURRENT SOUND CORRESPONDENCE

Regular Correspondences	**Irregular Correspondences**
- based on vertical relations	- based on horizontal relations
- retention / divergence	- transfer / convergence
tend to show:	tend to show:
- relatively large number of attestations	- relatively small number of attestations
- mostly widespread attestations	- less widespread attestations
- many CB / archaic forms	- relatively few CB / archaic forms

Figure 8: Recurrent Sound Correspondence

The number of attestations as well as their distribution may be considered 'soft' parameters in the distinction between inheritance and contact, as there is a certain degree of arbitrariness involved. Even if threshold values were introduced that could classify the distribution of items into restricted, widespread, and highly widespread items, any decision for such threshold values would remain questionable. The same holds for the amount of attestations within a specific series, which, again, is best approached intuitively.
The criterion of formal aberrance, may, in contrast, be described as a 'hard' parameter in the distinction between inheritance and contact. If the distribution and number of attesting items in a specific series can be secondary indications of language contact at best, formal and systematic aberrancies of individual word forms, in contrast, seem to be more reliable – i.e. primary – indicators of linguistic diffusion.
In his compendium *Comparative Bantu*, Malcolm Guthrie (1967-71) provides a practical guideline for the classification of aberrant forms: He distinguishes between (1.) "inadmissible" and (2.) "multi-valent" lexical items; both types may be indicative of convergent language relations.
(1.) Inadmissible word forms, according to Guthrie (Vol. 2: 28 ff.), are items that are not suitable as a valid entry in a particular comparative series due to their "skewed meaning" or "skewed shape". The former denotes an item that is formally connected to the other items in a comparative series and, therefore, meets the conditions of recurrent correspondence from a merely formal perspective. In regard to its meaning, however, such an item does not agree with the rest of the correspondence series.
The stem *-pet-*, as Guthrie (Vol. 2: 15) shows, for example, may denote a variety of concepts, such as 'to bend' (Bemba, M.42), 'to achieve' (Lozi, K.21), or 'to pay tax' (Zezuru, S.12), in different Bantu languages. Such a deviance in meaning is due to semantic change, i.e. the change of the meaning of a lexical item through time (Urban 2015: 374). Semantic change may be due to linguistic divergence or it may be the result of language contact. The latter is exemplified by some Swahili loans in Central Kenya Bantu, such as in the case of the verb *to work*: A few locations in Kamba denote this concept by using the loan *-ðʊkʊma.* This item goes back to Swahili *-sukuma* with the original meanings of 'to push, to drive, to move'. When borrowing this item, Kamba speakers apparently have given the word a broader connotation, different from the original meaning of the Swahili source word. We may say that this instance constitutes a case of metaphorical change (due to contact): There are semantic differences to be observed between the recipient and the donor language; however, the source and target meaning stand in a relationship of similarity to each other (Urban 2015: 374). In the lexical data of this study, a skewing in meaning is rare. In a number of instances, however, there seem to be conceptual issues that need to be taken into account in this context. The meaning *to pound*, for example, may be expressed by different concepts, such as 'to kill', 'to break', 'to beat' in Central Kenya Bantu.
The fact that one English keyword may correspond to more than one concept in the Bantu languages is also recognized by Guthrie (Vol. 2: 25), when he instances that "there is a radical that apparently means both 'become well-cooked' and 'become burnt-up'." In some cases, we may also find the retention of a certain Common Bantu item under a specific meaning that differs, albeit slightly in most cases, from the original semantics listed by Guthrie. Under the keyword *door*, for example, two distinct forms *mʊ.(r)angɔ* and *mʊ.ɔmɔ* are listed. The former relates to CB *-diàngò C.S. 552, listed by Guthrie with the meaning 'door'. The latter goes back to CB *-dòmò C.S. 652, for which Guthrie provides the meaning 'mouth'. At a first glance, the two concepts 'door' and 'mouth' seem to be far apart from each other in regard to their respective semantic class. However, they do not seem to constitute a skewing in meaning; the term *mʊ.ɔmɔ* simply describes the entrance of a house figuratively by using the concept 'mouth'.

A "skewed shape" is, in turn, defined by Guthrie (Vol. 2: 29) as an instance in which a specific item agrees semantically with the other items in a particular comparative series; however, the shape of the item is irregular: "Frequently an item is found with an assignable meaning identical with the connector of a given C.S. [comparative series] but with a shape that is not quite suitable as a valid entry, due to the presence of some feature that rules it out." In such cases, Guthrie lists the relevant item next to the regular ones, showing which feature the decision to rule out the particular form is based on. The Common Bantu item *-cèk- 'to laugh' C.S. 312, for example, is reflected as *-sɛk-* in Tsɔgɔ (B.31) when *-*sɛɣ*- would be expected according to the majority of relevant items (ibid.). Items showing skewed shapes are categorized by Guthrie as "eccentric" shapes (items unsuitable for one particular reason only) and "extraneous" shapes (items considered unsuitable based on patterns or single units). The Common Bantu item *-dị̀m- 'to extinguish' C.S. 617, for example, is realized with a click consonant in Xhosa (S.41), a sound that is, as Guthrie (Vol. 2.: 31) points out, "extraneous" in the Bantu language. The example of *-sɛk-* in Tsɔgɔ (B.31) mentioned above is, in contrast, simply "eccentric", as only one feature shows deviance. Any type of skewed shape, it is important to note, may be a sign of a contact language relations.

(2.) The other type of formal aberrance recognized by Guthrie (Vol 2: 20) is shown by the so-called "multivalent" forms, i.e. items that can be listed under more than one comparative series: "it sometimes happens that an item can be entered in more than one C.S. [comparative series], because one or more of the patterns in its shape belongs equally to more than one recurrent set." In this study, such formal aberrancies are recognized in parallel correspondence series, i.e. cases in which a particular phoneme in dialect A, for example, recurrently corresponds to two or more phonemes in dialect B. Metaphorically speaking, one could say that in these cases two correspondence series collapse. This, it is important to note, may indicate that the relevant forms (showing multi-valence) attest to different borrowing directions.

The example of the keyword *cheap* may suffice to illustrate this: In Gikuyu, the concept is expressed by the form *raiði*, while Kamba shows *laiʂi*, both borrowed from Swahili *rahisi*. In Gikuyu, this item is integrated into the sound system, i.e. Swahili /s/ is substituted by the Gikuyu dental fricative /ð/, a phoneme that relates to Common Bantu *c and is represented in the correspondence series *C_3 (CB *c > /ð/ in all of CKB). In Kamba, in contrast, the Swahili word *rahisi* shows an alveolar fricative /ʂ/ yielding *laiʂi*. This Kamba phoneme is not derived from an ancestral meta-language and represents correspondence series *C_1. From the perspective on Kamba alone, *laiʂi*, therefore, attests to series *C_1. In Gikuyu, however, *raiði* attests to series *C_3. Depending on the point of view, this example shows, this item may be entered into either one of the two series *C_1 and *C_3 – it, thus, constitutes a multivalent form.

In other words, in regard to this loan from Swahili *rahisi*, the two correspondence series *C_1 and *C_3 collapse. Accordingly, an intermediate series *C_2 is set up that represents the fact that Gikuyu /ð/ may, in some instances of multivalence, correspond recurrently to Kamba /ʂ/ (while in the majority of cases it corresponds to Kamba /ð/). As mentioned above, multi-valent items may indicate different regional origins; in the case of the Swahili loan above, the collapse of two correspondence series seems to indicate different borrowing directions of coastal loanwords.

Formal aberrancies, be they skewed shapes or multi-valent forms, may be understood as an indicator of contact-based language relations. The process of distinguishing between genetic inheritance and language contact includes the investigation of such aberrant forms. Guthrie's (1967-71) classification of aberrant forms is subsumed in the following table:

<table>
<tr><th>Guthrie's term</th><th>divided into</th><th>divided into</th><th>Example</th><th>Comment</th></tr>
<tr><td rowspan="3">inadmissible

not quite suitable as a valid entry in a particular C.S. (Vol. 2: 28 ff.)</td><td>skewed meaning</td><td>---</td><td>-pet- 'to bend' M.42
'to achieve' K.21
'to pay' S.12</td><td>Semantic Change, conceptual issues in CKB</td></tr>
<tr><td rowspan="2">skewed shape</td><td>eccentric</td><td>*-cèk- > -sɛk- B.31
(expected: *-sɛɣ-)</td><td>Items unsuitable for <u>one</u> particular reason</td></tr>
<tr><td>extraneous</td><td>e.g. clicks in Xhosa</td><td>Items unsuitable based on patterns or single units</td></tr>
<tr><td>multi-valent

an item can be entered into more than one C.S. (Vol. 2: 20)</td><td>---</td><td>---</td><td>379 cheap
Gikuyu Kamba
raiðɨ laiʂi
*C₃ = ð *C₁ = ʂ
➔ entered into *C₂</td><td>Multi-valent forms possibly indicate multi-regionals origins (convergence): parallel series</td></tr>
</table>

Table 16: Guthrie's (1967-71) classification of irregular forms

If a particular lexical item shows an aberrant shape, it seems relatively likely that this word is a loan. In general, we can only be certain that a particular word is a loan, if a relevant source word in a donor language (for which a plausible contact scenario exists) can be identified (Haspelmath 2009: 44). However, in some cases, we can assume that a certain word was borrowed into a language, even though neither a source word nor a donor language can be found.

The following example may serve to illustrate this in the case of Kamba: The Common Bantu segment *d is replaced by a lenis consonant in all dialects of Kamba, while it is reflected as /r/ in the rest of Central Kenya Bantu. Accordingly, Kamba speakers have no means of incorporating loanwords showing /r/ into their phoneme system – this sound is foreign to the tongue of a Kamba speaker. In an effort to come as close to the original pronunciation of such words (adaptation), Kamba speakers generally substitute /r/ of the donor language with /l/, as it can be seen, for example, in a number of Swahili loanwords (e.g. *200 window*, *379 cheap*, *457 road*). Thus, the lateral approximant /l/ is not a genetically inherited phoneme in Kamba but a relatively recent contact induced innovation, which originates from the adaptation of /r/ in foreign words. We can, therefore, be relatively sure that any word showing /l/ in Kamba, e.g. *-latia* 'to send' or *kɪ.lɔnzɔ* 'noise', is a loan, even though a relevant donor language has not yet been identified in each case.

The above argument illustrates that formal factors are most important in identifying loanwords. An aberrant shape, i.e. a form that cannot be explained by regular derivation from an ancestral language, may indicate that this word was borrowed. This holds especially for lexical items that show a multitude of similar, yet irregular, word forms under the same meaning. Under the keyword *to retur*n, for example, six similar word forms are listed:

094 to return

1a.	-cɔːka	A_1	1-26, 31-34, 40-44	Meru, Nithi, Embu, Tharaka
1b.	-sɔːka	A_1	104, 105	Ndia, Gichugu
2.	-ciɔːka	A_2	27-30, 32, 35-39	Chuka, Embu (32), Mbeere (35-39)
3.	-syɔka	A_3	48, 49, 56, 61-68, 70-97	Kamba
4a.	-cɔka	A_4	98-101, 103	Nyeri, Kiambu (101), Mathira (103)
4b.	-sɔka	A_4	102	Murang'a
5.	-syɔkɛðya	A_5	87	Kamba
6.	-siɔka	A_6	45, 46, 47, 50-55, 57-60	Kamba

Table 17: 'to return' in Central Kenya Bantu

Most of the forms in table 17 are phonologically divergent, none of which seems to be regularly related to a common ancestral language. The high amount of similar, yet irregular, word forms is rather an indicator of parallel borrowing: All of the word forms listed in table 17 go back to the Maasai word *a-shúk* 'to give back' (Tucker & Mpaayei 1955: 304).
The occurrence of a relatively large amount of divergent lexical items, the above examples in table 17 show, may indicate language contact as the cause of formal aberrance. However, we must not interpret any case of formal irregularity as an indication of language contact. I pointed out in section 2.1 that Ross' (1997) speaker-oriented framework provides a number of explanations for the irregularities of change, of which borrowing is only one possibility: A social convention, such as a taboo, for example, may result in the avoidance of regular forms (Ross and Durie 1996: 13), yielding a number of irregular forms. Moreover, we find that the elicitation of keywords which seem to be infrequently used in the daily lives of the speakers often yield a large number of divergent forms (e.g. *332 snail*, *336 soldier ant*). These considerations need to be kept in mind when judging in each case of formal aberrance if borrowing is the most likely cause of the irregularities observed.
Apart from the formal factors that may indicate horizontal language relations, the distribution of word forms is another aspect to be factored in when identifying loans. This is to be distinguished from the aforementioned distribution of lexical items that establish a specific correspondence series. I showed above that recurrent correspondences based on vertical relations are mostly attested to by items that show widespread distribution; i.e. they connect a wide range of dialects under a specific series. Apart from such widespread cases, we may also find words that are restricted in distribution and may, therefore, not serve as a dialectological connector between more than a few varieties (or, in fact, just a few locations). In other words, if a specific form is highly limited in distribution – even isolated in some instances –, it is likely that we stumbled upon a loanword, as the following example shows:

435 rain

1.	ngai	A	1-6, 8, 10	Imenti, Nkubu Miutini (8, 10)
2a.	mbura	B	7, 9, 11-44, 98-105	most of Eastern & Western
2b.	mbua	B	45-97	Kamba

Table 18: 'rain' in Central Kenya Bantu

The two forms subsumed under B in table 18 are inherited words, both relate to the Common Bantu item *-bṷdá C.S. 225. Both forms show highly widespread distribution – almost all locations show form B, except for a few locations in the very north of the language area, i.e.

i n Imenti, Nkubu, and two locations of Miutini, where form A is attested. This form is borrowed from the Maasai word *en-kái* denoting 'God' (Tucker & Mpaayei 1955: 303), a concept generally connected to the meaning 'rain' in the Kenyan Highlands.

A regular connection to Common Bantu can be considered a strong indication – if not proof – of a genealogical relationship. There are, however, lexical items in the data base that show regular connections to each other, yet no relation to Common Bantu. Such an item is, for example, found under the keyword *daytime*: All of Central Kenya Bantu shows the form *mU.ðɛŋa* under this keyword. This forms is non-cognate to the relevant Common Bantu item *-tṷkṳ̀ C.S. 1864. Its wide distribution suggests, however, that this item has been inherited. Massive borrowing of such a basic concept is a rather implausible explanation. Consequently, it can be assumed that the word *mU.ðɛŋa* is a relatively old form shared by all of Central Kenya Bantu; thus, it belongs to the common heritage of these languages and, theoretically, originates from a historical stratum or a common meta-language

A large amount of lexical items, all regular but non-cognate to Common Bantu, can be considered to originate from such a common meta-language. The exact history of most of these words is, however, generally beyond our experience. On an idiolectal level, any linguistic change starts out as an innovation that is horizontally transmitted throughout the speech community. Once this new word has come to be used by a significant number of speakers, it becomes part of the general lexicon of a language, eventually being transmitted vertically from generation to generation. The initial spread of such words from one speaker to another may be called "propagation" (Croft 2006: 174 ff.). In the case of old words that are deemed a part of a common Central Kenya Bantu heritage, it can, therefore, never be ruled out that, at some historical stage, these words spread by the process of propagation or – in the case of inter-dialectal relations – borrowing. This process, however, must have taken place at a historical point in time that is beyond our experience.

In historical linguistics, such words are named *Wanderwörter*. These words may be attested across the boundaries of language families without the linguist being able to determine in which family they originate. Wolff et al. (2009) call these forms "areal roots". Since most of the relevant items are attested across dialect or language boundaries in Central Kenya Bantu, but not across language family lines, they are accordingly called *common roots* in this study. An example of such a common root is found under the keyword *wall*: All languages except for Kamba use the same form *rU.ðingɔ* – formally, there is no indication of borrowing. From a distributional perspective as well, this word seems to be a classic case of inherited material, as it is used in every Bantu dialect of Central Kenya. The only reason why one might be led to assume that, at some point, this item spread throughout the different speech communities lies in the meaning of this word: It belongs to the so-called cultural vocabulary generally known to be prone to borrowing. In fact, as discussed in chapter 1, the sedentary mode of living in Central Kenya started with the immigration of the first Bantu speakers into the highlands. It is, thus, not unlikely that a concept like 'wall' and, consequently, a word like *rU.ðingɔ* denoting such technological innovation, is a *Wanderwort* or a common root. However, as the true historical nature of this item is beyond our experience, we can only certify that it is common to Central Kenya Bantu with the exception of Kamba, where the wide distribution of a Swahili loanword is attested. The fact that in many Kamba locations a Swahili loan is used, incidentally confirms the view that the concept of 'wall' may be prone to borrowing in these languages.

The observation that some concepts are more likely to be borrowed than others can be used as an additional tool in the identification of loanwords. Aikhenvald and Dixon (2001: 14) pose the question whether there is a hierarchy with regard to which linguistic categories are more, and which are less, borrowable. Regarding the lexicon, the answer to this question, according to Haspelmath and Tadmor (2009a), is clear: Yes, there is a hierarchy with respect to

borrowability, i.e. how likely it is for a specific word to be borrowed. Not only is it evident from the study of loanwords in the world's languages that nouns are generally more likely to be borrowed than verbs, adjectives, and adverbs. There are, moreover, significant differences between the borrowability of words with respect to the semantic categories they belong to. In short, Haspelmath and Tadmor (2009a) confirm what linguists interested in the study of language contact have always claimed: Cultural vocabulary is more likely to be borrowed than core vocabulary.

For example, words denoting technological or cultural innovations, such as 'paint', 'road', or 'shirt', are concepts that are much more borrowed cross-linguistically than basic concepts such as terms for human body parts or verbs describing the human senses of perception. In this study, this hierarchy of borrowability is applied to Central Kenya Bantu in order to assess whether a group of words is likely to show much borrowed material or not. By grouping the lexical data into appropriate semantic fields, two purposes are served in the process of identifying loanwords: First, handling a total of 496 lexical items is much easier if the data is categorized in no more than two dozens semantic domains. Second, in accordance with Haspelmath and Tadmor (2009a), we can judge *a priori* how likely we are to find a significant number of loanwords in a specific semantic field.

In the previous paragraphs, I showed that formal aberance and marked distribution are primary factors in the identification of loanwords. By factoring in these two parameters we can not only identify loanwords but we can also, in a number of cases, deduce claims on the direction of specific borrowing processes. The two factors above may enable us to identify which variety is the donor and which variety is the recipient language in a particular contact situation. The following example of the keyword *quarrel* may suffice to illustrate this:

The concept of 'quarrel' in the sense of a domestic or legal dispute belongs to the semantic field 'law', which shows one of the highest rankings in the loanword typology (Tadmor 2009: 64), i.e. legal terms are particularly prone to borrowing. We may expect to find at least some word forms that point towards horizontal language affiliations in this domain. The word *ngalali* occurring in two locations in Kitui-Kamba, is such a word:

The lateral approximant /l/ does not belong to the phonological heritage of Kamba. Consequently, if we find a word in Kamba showing /l/, such as *ngalali*, there is a good chance we stumbled upon a loanword. But what language is the donor of this word? In Chuka (27-30), we find the form *nkarari*, most of Embu (31-34) and one location in Mbeere (39c) show the related form *ngarari*. Thus, there seems to be an affiliation between Chuka, Embu, Mbeere, and two locations in Kitui-Kamba with respect to the keyword *quarrel*. Since the relevant word forms are regular and widespread in Chuka and Embu, but show highly restricted distribution in Kamba, the former two varieties are likely to be the source of the loanword *ngalali*. The direction of borrowing may consequently be described as going downhill from the southeastern slopes of Mount Kenya into the lower plains of Kamba. The opposite direction would be unlikely considering distribution.

With regard to formal factors as well, a possible borrowing direction from Kamba uphill into Chuka, Embu, and Mbeere is implausible: The Chuka phoneme system disposes both of a voiced and a voiceless pre-nasalized velar plosive, /ng/ and /nk/. In Kamba, no voiceless segment of the sort exists. There is no reason to believe that Chuka speakers would incorporate a segment /ng/ as /nk/, when their sound system already has /ng/ at its disposal. Since Kamba speakers have no inherited means of pronouncing /nk/ or /r/, the Chuka word *nkarari* would, accordingly, be imported into the Kamba lexicon as *ngalali.*

In short, it is more likely for formal and distributional reasons that the relevant word form originated in the area between Chuka and Embu, from where it spread into Kamba, than vice versa. In this context, it needs to be stated that the present territories of all the relevant groups do not adjoin. However, according to Mwaniki (1973: 20 ff.), the Chuka, Embu, Mbeere, and

Kitui-Kamba share a long-lasting history of contact: By the time of migration into the Kenyan Highlands, the Mbeere moved into the area with the Embu to their right and the Kamba of Kitui to their left; Embu and Mbeere, as Mwaniki (1973: 27) points out, consider each other as "brothers". Additionally, marriage relations between Embu, Chuka, and Kamba are attested by the oral traditions rendering language contact between these varieties a plausible scenario.
In this section, I discussed the theoretical and methodological principles that underlie the procedure of distinguishing inheritance from contact in the linguistic data base. We must bear in mind that we can never rule out that a specific language feature was transferred horizontally from one variety to another. The question whether we deal with a case of inheritance or contact in a specific instance of linguistic congruence is, consequently, a question of probability. Accordingly, it needs to be individually judged for each case of recurrent sound correspondence and lexical agreement whether inheritance or contact is the most plausible explanation for the relevant instance of congruity. The following four parameters are applied to distinguish genetically inherited from contact-induced linguistic material:

(1.) Number of lexical items attesting to recurrent sound correspondence

If an instance of recurrent sound correspondence between two (or more) dialects is based on a genealogical relationship, we usually find a relatively large amount of (archaic) forms that establish this correspondence. In contrast, phonological correspondences that are due to lexical transfer are generally attested to by a smaller amount of lexical items.

(2.) Distribution

Regular sound correspondences are usually attested to by lexical items that are widespread, i.e. they connect a wide range of dialects through sound correspondence. The items that attest to irregular correspondence, which is based on language contact, are generally less widespread in distribution. Moreover, lexical forms that show highly restricted – in some cases: isolated – distribution seem more likely to have been borrowed rather than inherited.

(3.) Formal aberrance

An unusual shape of a lexical item may indicate language contact: If an item shows a shape that differs from what could be expected in the regular derivation from an ancestral language, it is likely that the relevant item is a loan. In the phonological comparison, such items of multi-regional origin often result in the overlapping / collapse of correspondence series (parallel series).

(4.) Semantic background

In general, core vocabulary (e.g. body parts, sense of perception etc.) is less likely to be borrowed than cultural vocabulary (e.g. judicial, technological terms etc.). The division of the lexical data into semantic domains enables us to judge *a priori* how likely we are to find a relatively large amount of borrowed material in a specific semantic field. On the basis of Haspelmath and Tadmor (2009b), we may also compare the borrowability of individual items in Central Kenya Bantu with their tendency to borrowing in the world's languages.

2.4 Historiographical Analysis

I pointed out in the beginning of chapter 1 that the history of any language is linked to the history of its speakers. This understanding is, for example, recognized in Ross' (1997) framework called the social network model: Ross (1997) emphasizes the fact that the developments in the history of a language seem to be connected to historical events in the community of its speakers – hence, the term "speech community events". Linguistic divergence, as mentioned in section 2.1, is the result of a situation in which a given speech community is separated socially or geographically. Linguistic convergence is, in contrast, preceded by the establishment of social links between the speakers of two previously distinct language varieties. These two examples show that socio-cultural events may become manifest in the language of a speech community. The investigation of language history, consequently, produces linguistic evidence which provides some sort of information on the past of the relevant speakers. This section deals with historiographical analysis from a linguistic perspective in general and the question whether the linguistic findings of this study may allow us to catch a glimpse into the social and political past of Central Kenya.

The main focus of this study is the distinction between inherited and borrowed linguistic material. If we recognize the fact that both types of material point to different social events, we are able to deduct a number of historical claims from our linguistic findings. These claims on the social and political past of Central Kenya may be understood as a 'by-product' of the qualitative dialectological analysis. It is important to note, however, that the linguistic evidence may merely provide clues on historical events. As pointed out in chapter 1, we must bear in mind that any attempt of reconstructing the history of East Africa will only allow a relatively narrow view of the past (Ambler 1988: 9).

At the center of attention in the qualitative analysis are the linguistically homogeneous areas identified by the multidimensional scaling of the dialectometrical results. By distinguishing between inheritance and contact we are able to assess whether common heritage or language contact has been the most important factor in the emergence of a given area of relatively low linguistic variation. However, as Wolff (2000) remarks, it is a misconception that linguistic homogeneity implies social homogeneity. It is important to note that one and the same type of linguistic fact may be the result of different social and cultural circumstances: The factors that influence the history of different languages do not always coincide with the same socio-cultural factors, such as migration or trade relations (Möhlig 1980b: 7). For example, linguistic divergence, as pointed out above, may be the result of a geographical separation of a speech community due to migration. It is, however, also possible that a speech community becomes divided socially for political reasons without any migration being involved (cf. Ross 1997).

A number of extra-linguistic circumstances may have an influence on the history of a language. Nichols (2003, 2014), for example, shows how geologic realities may impact the linguistic profile of a region. Greenhill (2015) argues that there exists a correlation between the demographics of a population and linguistic diversity in general, i.e. the number of distinct varieties within a given language family. Social factors may, in turn, affect different linguistic domains, such as grammar or discourse (Epps 2015: 589 f.). Grammatical convergence, for example, can reveal the extent and dynamics of a specific case of interaction: If grammatical restructuring is largely one-sided, it is likely that the social interaction was demographically imbalanced.

The majority of work on socio-cultural reconstruction from a linguistic standpoint has, however, focused on lexicon, "which represents the most concrete source of insights about the lives of speakers in the past" (Epps 2015: 588). Accordingly, the last one of the four parameters in qualitative dialectology discussed in section 2.3.2 – semantic background –

seems to make the correlation between the history of a language and the social past of its speakers most easily accessible. For Ehret (2000: 272), words constitute "artefacts" of a language that express "the whole gamut of knowledge, experience and cultural practice pursued by the various members of society that speaks the language." In this sense, the lexicon of a language may complement sources from other disciplines, such as the historical information drawn from oral traditions, especially in places like the humid tropics of Central Kenya, where archaeological evidence is thin (Epps 2015: 579).

The claim that the vocabulary of a language represents the collective knowledge of its speakers, thus allowing us to take an insight into the cultural practices of a society based on lexical analysis, is generally associated with the etymological approach labeled 'words and things' (*Wörter und Sachen*). In this context, socio-cultural reconstructions based on the lexicon are based on a set of methodological assumptions (Epps 2015: 580 ff.): First, words (and their meaning) reconstructed for a particular proto-language are assumed to represent concepts relevant to the speakers of such an ancestral language. Second, etymologically complex words (compounds) are assumed to represent newer concepts than morphologically simpler units. Etymological complexity, however, is far from proof of its relative newness, as Epps (2015: 584) points out: Morphologically complex items may persist over long periods of time, and many new terms are not morphologically complex at all. Third, it is assumed that loanwords tend to represent more recent concepts; where loanwords have replaced pre-existing items, they are likely to indicate the cultural significance of the relevant concept in regard to the social interaction.

Loanwords can be seen as "a key source of clues regarding the dynamics of interaction that has taken place [...] in the past, and the spread of particular cultural and technological innovations over time and space" (Epps 2015: 585). In general, we may assume that a particular loanword represents a concept that is new in the recipient language at the time of borrowing. This becomes obvious in the investigation of loans in the world's languages (Haspelmath and Tadmor 2009a), which shows that the semantic field 'clothing and grooming' is especially prone to borrowing. Globalization, Tadmor (2009: 65) points out, has contributed to the spread of European garments, of which the majority had been unknown in large parts of the world prior to colonialism. Accordingly, Epps (2015: 586) argues that we can be most confident of generalizations drawn from whole semantic domains: A relatively large amount of loans in a specific domain, such as 'clothing and grooming' and 'law', indicates the social importance of such a semantic field in a specific situation of cultural interaction.

It is important to note in this context that not every loanword relates to a concept that is new to the speakers who borrow a particular lexeme, as loans often replace pre-existing items in the recipient language. If this is the case, we are safe to assume that the referent of the relevant loan is somehow socially or culturally noteworthy (ibid.). Examples are found, for instance, under the keyword *blood* in Central Kenya Bantu: None of the relevant varieties uses an original Bantu word to denote this concept. Instead, we find the loans *ðarikɛ* (from Maasai *o-sárgé*) , *ndamu* (from Swahili *damu*), and a number of divergent form, such as *(n)ðakamɛ*, that all go back to Southern Cushitic **sakamɛ*. Possibly, the concept of 'blood' was taboo in the Bantu languages of Central Kenya for some time and was, therefore, replaced in some dialects by a Swahili loan. The fact that Maasai and Cushitic loanwords occur as well may indicate the significance of this concept in regard to social interaction:

According to the oral traditions, the early Bantu pioneers of Central Kenya engaged in 'blood-brotherhoods' with their neighbors and the prior population of Mount Kenya for the exchange of land and as a basis of trading relations in general (see section 1.2.2).

The fact that the Bantu speakers have adopted Nilotic and Cushitic loans for the concept of 'blood' shows that their non-Bantu neighbors must have been the dominant parties in the set-

up of social and economic relations at the time of borrowing. If it had been vice versa, the Bantu speakers would have dominated the conduct of establishing relations, and we could expect to find Bantu words in Maasai for the expression of such socially important concepts like 'blood'. This shows that lexical borrowing may indicate prestige relations, i.e. provide information on how these relations affected people's daily lives (Epps 2015: 585). An example from English may suffice to support this claim: Under the influence from Norman French, Middle English developed two parallel sets of terms for animal – the ones on the plate (borrowed from French) and the ones in the barnyard (maintained in English). Modern English distinctions such as 'mutton' versus 'sheep' or 'pork' versus 'pig', for example, reflect the elite status Norman French had by the time of lexical borrowing into English (ibid.). Needless to say, in order to obtain an insight into prestige-motivated borrowing, the borrowing direction needs to be clear, as this is crucial for the understanding of the social relations among the groups involved in a specific contact situation (Epps 2015: 586).

Consquently, *Wanderwörter* (named 'common roots' in this study, see section 2.3.2) are problematic in this context, as neither the source nor the borrowing direction can be clarified in such cases (ibid.). There is number of additional challenges and limitations to be considered in the socio-cultural reconstruction from a linguistic point of view: As Epps (2015: 583 f.) points out, any interference between language and culture made in the context of classic historical linguistics is only as valid as the relevant linguistic reconstruction. It is important to note in this context that the inability to reconstruct a specific item does not entail its absence. Moreover, the general claim that etymological complexity indicates the relatively recent introduction of a specific word is questionable, as new items are often just as morphologically simple as obviously archaic lexical material. In the context of borrowing, Epps (2015: 586) points out, there is also the danger of circular reasoning involved: On the one hand, we may assume that if an item was borrowed, it must have been socially significant at the time of borrowing. On the other, we may assume that socially important items are generally prone to borrowing.

Despite these theoretical pitfalls, we are, nonetheless, able to correlate our linguistic findings with extra-linguistic evidence from oral traditions. I pointed out in section 1.2.2 on the extra-linguistic background that the history of the Kenyan Highlands has, for the longest parts, been a history of population expansion, followed by the emergence of regions with a relatively high population density due to the gradual influx of migrants. The dialectological approach is able to recognize this fact by taking both linguistic divergence and convergence into account. The multidimensional scaling of the dialectometrical results reveals which areas in Central Kenya show a relatively high degree of linguistic congruence. The qualitative analysis, in turn, distinguishes between inheritance and contact in regard to the emergence of such areas, each pointing to different events in the history of the relevant varieties. By distinguishing inherited from borrowed material and identifying the borrowing direction in cases of language contact, we are, then, able to relate linguistic facts to social events that have taken place in a particular speech community. Thereby, we can shed some light on the extent and dynamics of socio-cultural interaction in Central Kenya and provide a number of clues on the social and political history of the Kenyan Highlands from a dialectological point of view.

3. Application of the Dialectological Methods

The application of the dialectological methods is the subject of this chapter, which is divided into four parts: First, I show how the quantitative analysis of the sound systems of Central Kenya Bantu is conducted (section 3.1.1), followed by the qualitative investigation (section 3.1.2), which distinguishes inheritance from contact. The same procedure is carried out for the lexical data, i.e. the quantitative analysis provides a survey of the lexical distances within Central Kenya Bantu (section 3.2.1), while the qualitative review distinguishes inherited from diffused lexical material (section 3.2.2). Finally, both inheritance and language contact are classified along formal, distributional and semantic lines in the sections 3.3 and 3.4 respectively.

3.1 Phonology

The data tables representing the phoneme systems of the Central Kenya Bantu languages provided in appendix A render it evident that, albeit generally similar, the different systems show substantial variation, not only in terms of phonetic realizations but also concerning the size of the respective phoneme inventories. For example, the dialects on the eastern slopes of Mount Kenya, such as the Meru dialects Imenti, Nkubu, and Miutini, show a total of 23 distinctive consonants; other dialects, such as Embu and Mbeere, in contrast, have a considerably lower number of phonemes at their disposal. In addition, the various dialects show differences in regard to phonetic realizations and phonological rules. The following section 3.1.1 shows how the phonetic and systematic differences are measured by means of phonological dialectometry.

3.1.1 Quantitative Dialectology: The Dialectometrical Analysis

In section 2.2, I laid out the general principles of dialectometry as well as the procedural steps from raw language data to generating statistical results. First, a system is set up that enables us to compare the different phoneme inventories described in appendix A. The basis of this system, as I showed in section 2.2.3, is recurrent sound correspondence. By identifying cognate, yet phonetically varying segments, it is possible to reconcile the different phoneme systems – or rather render them compatible for systematic comparison. Second, the phonetic differences within the each correspondence series are evaluated by applying the method of feature analysis (Jakobson et al. 1952, Chomsky and Hall 1968). Finally, the results of this procedure are visualized by applying the method of multidimensional scaling.
On the basis of recurrent sound correspondence, 39 series have been established. Ten series need to be considered non-diagnostic in dialectological terms, i.e. they show no synchronic variation. The following recurrent sound correspondence series have been identified in this study:

1a.	*C_1/_/a, ɛ, ɪ, ɔ, ʊ/	4a.	*G/_/a, ɛ, ɪ, ɔ, ʊ/	6.	|*J_2 + i|
1b.	*C_1/_/i, u/	4b.	*G/_/u/	7.	*J_3
2.	*C_2	4c.	*G/_/i/	8.	*K_1
3.	*C_3	5.	*J_1	9.	*K_2

10.	*K_3 (Dahl's Law)	18.	*NC_2	27.	*P_2
11.	*M	19.	*ND	28a.	*R_1/_/a, ɛ, ɔ, U/
12.	*MB_1	20.	*NG	28b.	*R_1/_/u/
13a.	*MB_2/_/a, ɛ, ɪ, ɔ, U/	21.	*NG'	28c.	*R_1/_/i/
13b.	*MB_2/_/i, u/	22.	*NJ	28d.	*R_1/_/ɪ/
14.	*MP_1	23.	*NK	29.	|*R_2+ i|
15.	*MP_2	24.	*NT	30.	*R_3
16.	*N	25.	*NY	31.	*T
17.	*NC_1	26.	*P_1	32.	*W

Table 19: Recurrent sound correspondence series in Central Kenya Bantu

The method applied here for the measurement of phonological differences between the dialects of Central Kenya Bantu follows the principles laid out in section 2.2.1 following Möhlig (1974a, 1986). In short, feature analysis denotes a method of describing articulatory differences between the sounds of a language in a systematic manner, i.e. based on binary oppositions. According to this approach, a phoneme may be described as either having certain phonetic properties or as lacking these (see Hyman 1975 for a concise discussion of distinctive features). This method follows the principles proposed by Chomsky and Hall (1986) for the English language. For the evaluation of phonetic variation within Bantu, however, additional features not listed by Chomsky and Hall are necessary (cf. Maddieson and Ladefoged 1996). The following table provides an overview of the contrastive features used in this study to describe all differences within the various comparative phono-series:

anterior	refers to any articulation produced at or in front of the alveolar ridge	cf. Chomsky & Hall 1968
high	refers to any articulation in which the body of the tongue is raised towards the palate	cf. Chomsky & Hall 1968
back	refers to any articulation in which the body of the tongue is retracted to the back of the oral cavity	cf. Chomsky & Hall 1968
voice	refers to a vibration of the vocal cords	cf. Chomsky & Hall 1968
stop	refers to a full closure in the articulatory apparatus	Features introduced instead of [+/-continuant]: [+stop] [- fricative] = stop [- stop] [+fricative] = fricative [+stop] [+fricative] = affricate [- stop] [- fricative] = approximant ('frictionless continuant')
fricative	refers to a near closure in the vocal tract resulting in turbulence of the airstream	
dental	refers to any articulation in which the teeth are involved	Feature introduced to distinguish segments that show [+anterior], e.g. [β] (bilabial) vs. [v] (labio-dental)
pre-nasal	refers to segments that consist of a sequence of nasal + consonant	Feature introduced to show the contrast between pre-nasalized and non-pre-nasalized segments, e.g. [nð] vs. [ð]

pre	specifies the shade of passive articulation, i.e. in the front part of a place of articulation	Features introduced to distinguish, for example, [nʒ] (prepalatal) from [nʐ] (postpalatal); [- pre] [- post] = no specification of passive articulation, i.e. prototypical articulation
post	specifies the shade of passive articulation, i.e. in the back part of a place of articulation	
slight	specifies the degree of affrication of a segment	Feature introduced to distinguish slightly affricated [n^{d}ʒ] from the 'true' affricate [ndʒ]

Table 20: Contrastive features applied in the feature analysis of Central Kenya Bantu phonology

Matrix 3 on the following page shows the overall results of the phono-dialectometrical analysis based on the contrastive features described above. This matrix represents the phonological distances within Central Kenya. The first column of matrix 3, for example, represents the phonological affiliations of the Gikuyu dialect of Kiambu with the remaining varieties. At the top of the first column, the identity values rendered by the comparison between Kiambu and the other Gikuyu dialects are relatively high. For example, Kiambu and Nyeri are phonologically identical, indicated by the value of 1. The comparison of Kiambu with the remaining Gikuyu varieties also shows relatively high values. If one moves down this first column, moving from west to east geographically, the rates seem to drop rapidly when comparing, for example, Kiambu with Embu and Mbeere: There is a relatively large dialectal gap between Kiambu and Embu-Mbeere in phonological terms. When moving down further in the first column of matrix 3, the identity rates increase slightly, however, remaining relatively low. In comparison with the Kamba dialects Masaku, Mumoni, and Kitui at the bottom of the first column, Kiambu shows the lowest amount of identity. In short, the numbers show that adjacent dialects are relatively close to each other in phonological terms, while more geographically distant varieties show a smaller amount of congruence.

	Kiambu	Muanja	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
Kiambu	0																			
Murang'a	0,82	0																		
Nyeri	1	0,82	0																	
Mathira	0,92	0,91	0,92	0																
Ndia	0,75	0,93	0,75	0,83	0															
Gichugu	0,87	0,88	0,78	0,79	0,83	0														
Embu	0,6	0,55	0,6	0,56	0,62	0,62	0													
Mbeere	0,62	0,57	0,62	0,58	0,64	0,64	0,98	0												
Chuka	0,67	0,58	0,67	0,63	0,63	0,63	0,78	0,8	0											
Muthambi	0,66	0,48	0,66	0,58	0,54	0,58	0,66	0,68	0,84	0										
Mwimbi	0,65	0,52	0,65	0,57	0,57	0,61	0,65	0,67	0,81	0,97	0									
Igoji	0,63	0,56	0,63	0,59	0,61	0,61	0,67	0,69	0,83	0,88	0,92	0								
Miutini	0,57	0,54	0,57	0,57	0,59	0,55	0,59	0,61	0,71	0,76	0,79	0,87	0							
Nkubu	0,65	0,58	0,65	0,61	0,63	0,56	0,69	0,72	0,85	0,82	0,79	0,83	0,75	0						
N-Imenti	0,65	0,52	0,65	0,61	0,57	0,57	0,63	0,65	0,79	0,82	0,79	0,83	0,75	0,92	0					
E-Tharaka	0,65	0,47	0,65	0,57	0,53	0,57	0,61	0,63	0,75	0,8	0,77	0,75	0,71	0,81	0,81	0				
W-Tharaka	0,59	0,52	0,59	0,55	0,57	0,57	0,63	0,65	0,83	0,74	0,71	0,75	0,66	0,85	0,77	0,89	0			
Masaki	0,47	0,55	0,47	0,52	0,62	0,52	0,52	0,54	0,51	0,41	0,44	0,45	0,47	0,46	0,38	0,37	0,41	0		
Mumoni	0,47	0,55	0,47	0,52	0,62	0,52	0,52	0,54	0,51	0,41	0,44	0,45	0,47	0,46	0,38	0,37	0,41	1	0	
Kitui	0,47	0,55	0,47	0,52	0,62	0,52	0,52	0,54	0,51	0,41	0,44	0,45	0,47	0,46	0,38	0,37	0,41	1	1	0

Matrix 3: Phono-dialectometrical result

The multidimensional scaling of matrix 3 visualizes the phonological distances. At a first glance, it becomes clear that the Kamba varieties, situated in the upper left corner of figure 9 below, are relatively distinct from all their neighbors. Embu and Mbeere are situated somewhat intermediate between Kamba and the Eastern Kirinyaga dialects, i.e. they are relatively separate from Eastern Kirinyaga in phonological terms. The eastern varieties are, in turn, grouped together relatively closely in the lower right corner of the picture. The western dialects are clustered in the lower left of figure 9:

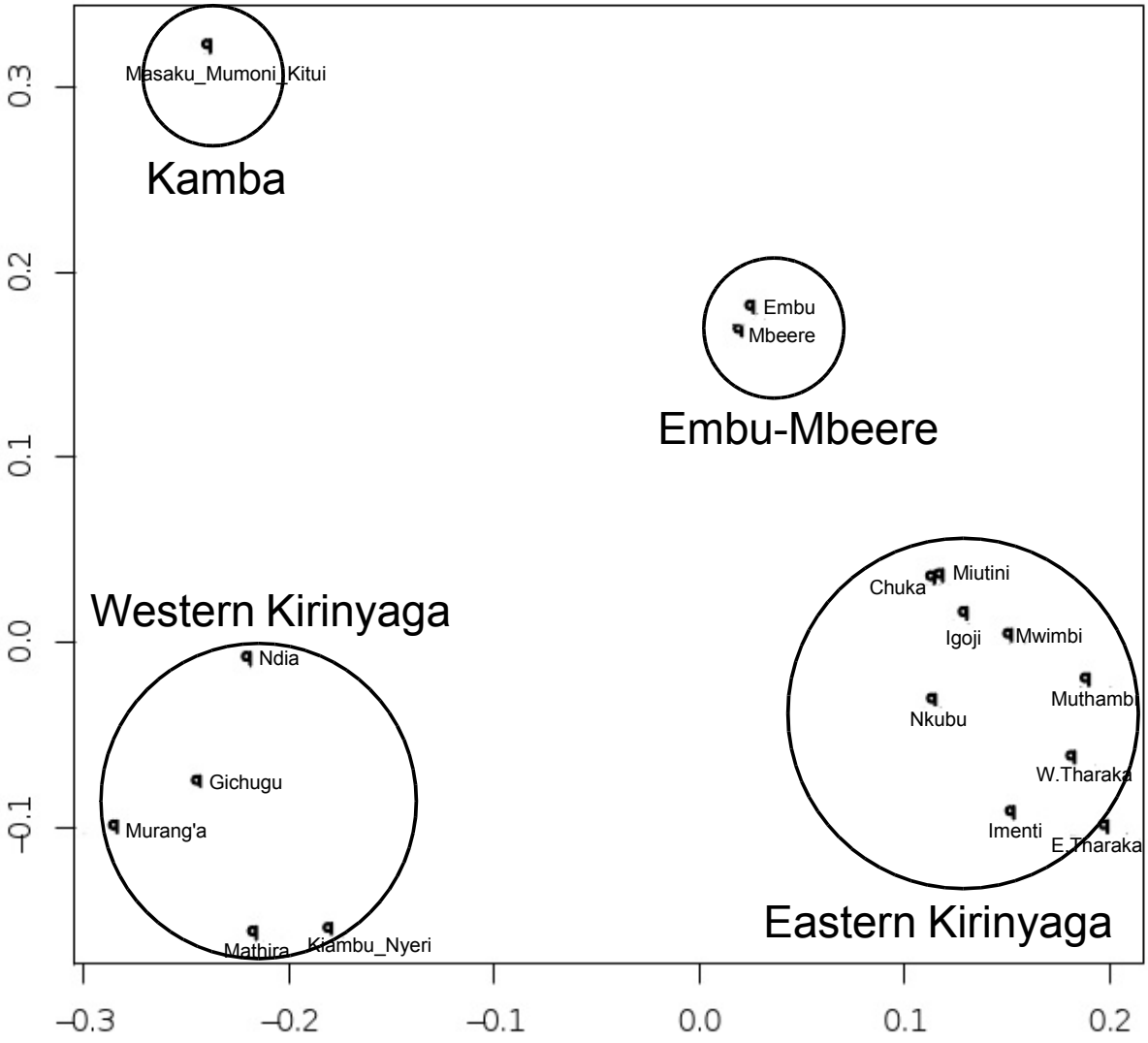


Figure 9: Phonological distances in Central Kenya Bantu

3.1.2 Qualitative Dialectology: Inheritance versus Contact

The objective of qualitative dialectology on the phonological level is to distinguish those recurrent sound correspondences that are based on genetic inheritance from the ones representing language contact. It is important to note that, theoretically, any correspondence series may show both types of linguistic development: On the one hand, the correspondence between feature *x* in dialect A and feature *y* in dialect B, for example, may be based on shared innovations. On the other hand, within the same series, dialect C may agree with dialect D in respect to a specific feature based on language contact. In other words, we may find a number of diffused items in a correspondence series that is mostly defined by inherited lexical material.
I argued in chapter 2 that the data refined according to the principles of structural linguistics do not suffice as basis for the qualitative analysis. Therefore, I introduced a number of parameters in section 2.3.2 that are used in the distinction between inheritance and contact:

- the number of attesting lexical items
- the distribution of attesting lexical items
- formal aberrance of attesting lexical items
- the semantic background of attesting lexical items

These four criteria are applied to the phonological data in this section, which is divided into three parts: First, I discuss a number of basic sound correspondence series. These are series that seem to be straightforward in regard to their historical background, i.e. they are based on regular correspondence (vertical relations). The amount of diffused material in these series is relatively low. In formal and systematic terms, these series stand alone, i.e. they do not coincide with other series and are, therefore, called basic series in this study (as opposed to parallel series).
Second, I examine a number of more complex series by discussing the merger or collapse of series, i.e. parallel series: These may be divided into double series (series merging with no more than one other series each) and multiple series (series merging with more than one other series).
Finally, I provide an overview of some inconclusive cases, for which only insufficient data exist, which prohibits us from applying the four parameters above, thus rendering historical interpretations in these cases difficult.

(1) Basic Correspondence Series

Basic correspondence series denote series that stand alone in regard to the sounds that are represented in these series. Analogical to Guthrie's (Vol. 2: 20) notion of multi-valent forms (see section 2.3.2), basic correspondence series are defined on the basis of *mono*-valent forms: The phoneme /m/, for example, is exclusively represented in series *M, i.e. /m/ does not occur in any other series. It is obvious that all Bantu languages of Central Kenya are connected by this series on the basis of common heritage, i.e. the reflexion of CB *m as /m/. In total, six series can be classified as this type of basic sound correspondence, as shown in table 21 below. In these series, all dialects connect to Common Bantu and show the retention of the relevant CB segments. In other words, the reason why the Central Kenya Bantu

languages concur in regard to the phonetic realizations in table 21 is genetic inheritance from a common meta-language.

series	realized as (in all of CKB)	Common Bantu
*M	[m]	< *m
*N	[n]	< *n
*NG'	[ŋ]	< *ŋ
*NY	[ɳ]	< *ɳ
*T	[t	< *t
*W	[w]	< *w

Table 21: Basic Sound Correspondence Series

The fact that all of the series listed in table 21 relate to Common Bantu indicates that inheritance is the important factor in regard to the historical background of these series. All of them comprise a relatively large amount of widespread lexical attestations; most of these items seem to be archaic.
There are, however, a few loans attested in some of these series: for example, the incorporation of the English loanwords *lumu* (Kamba) and *ru:mu* (in the remaining varieties) under the keyword *room* in series *M or the loans *ca:ti*, *cati*, *sa:ti*, and *sati* in series *T, which all go back to Swahili *shati* 'shirt'.
Despite such instances of borrowing, the important factor in the six series listed in table 21 is genetic inheritance, as the retention of the relevant Common Bantu segments shows. On a side note, from a dialectological point of view, all of the six series above are non-diagnostic in regard to the internal affiliations of Central Kenya Bantu, as none of the varieties shows variation in any one of these series. Consequently, these series may be disregarded in the dialectometrical analysis, since their inclusion in the calculations would have no impact on the statistical results (relative similarities). In other words, the series above tell us nothing about the relationships between the different dialects of Central Kenya other than the fact that they all belong to the numerous members of the Bantu language family.

(2) Double Correspondence Series

Double series may also subsumed under the term 'parallel series'. This term describes the fact that some of the comparative series identified in this study collapse – or: merge – with other series. This means that in contrast to the representatives of basic correspondence series (established by mono-valent forms), in the context of parallel series, one phoneme may be represented by more than one series.
The Gikuyu phoneme /ð/, for example, occurs in both series *C_2 and *C_3, while Kamba /ð/ only connects to one series *C_3. Consequently, from a perspective on Gikuyu alone, any item showing /ð/ may be included in either one of the series *C_2 or *C_3. In Guthrie's (1967-71) terms, such items constitute multi-valent forms, which may indicate multi-regional origins, i.e. horizontal language relations.

Series	Gikuyu	Kamba
*C_2	/ð/	/s/
*C_3	/ð/	/ð/

*Table 22: Series *C_2 and *C_3 compared for Gikuyu and Kamba*

On this subject, not every instance of merging correspondence series is due to borrowing or homogenization in general. I explained in section 2.3.1 how inheritance and contact may impact language change; internal as well as external developments may cause the reduction of contrasts within a given sound system known as a merger of phonemes.
The following six correspondence series in table 23 can be classified as double (parallel) series, each merging with no more than one other series.

	Series		Parallel series	Distribution of merger
a)	*NJ	merges with	*NC_1	all of Western, Embu, Mbeere, Kamba
b)	*NK		*NG	all of Western, Embu, Mbeere, Kamba
c)	*NT		*ND	all of Western, Embu, Mbeere, Kamba

Table 23: Double parallel series

From a distributional perspective, the mergers of the series described in table 23 indicates a two-way split of Central Kenya Bantu. In the western dialects as well as Embu-Mbeere and Kamba, the series merge, while the eastern dialects (from Chuka northwards throughout Imenti) show no merger of series in this context:

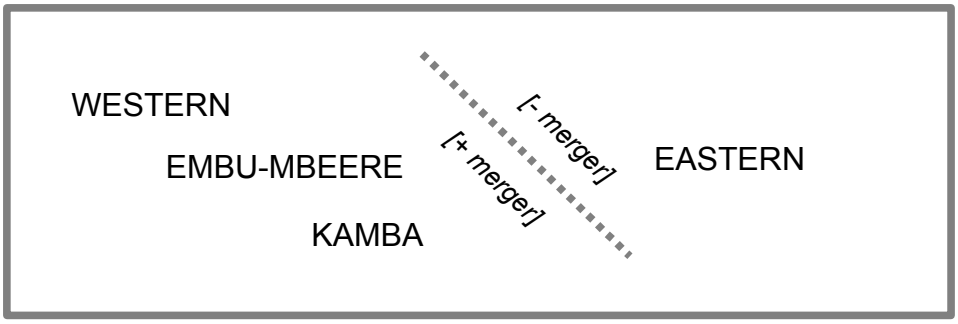


Figure 9: Double series (mergers) in CKB

*a) Correspondence Series *NJ and *NC_1*

- *Correspondence Series *NJ*

Table 23 above shows that the series *NJ merges with the series *NC_1 in all western dialects (i.e. the four Gikuyu dialects as well as Ndia and Gichugu), in Embu-Mbeere, and Kamba. Regarding phonetic realization, the series *NJ divides Central Kenya Bantu into a total of six groups. The following table provides an overview of the relevant isoglosses and shows where *NJ and *NC_1 overlap:

Western	Embu-Mbeere	Eastern			Kamba
[nʒ] = *NC$_1$	[nʐ] = *NC$_1$	[ndʒ]	[n^{d}ʒ]	[nʒ]	[nz] = *NC$_1$
Gikuyu Ndia Gichugu	Embu Mbeere	Mwimbi Muthambi Igoji	Chuka W-Tharaka	Imenti Nkubu Miutini E-Tharaka	Kamba

*Table 24: Phonetic realizations in Correspondence Series *NJ*

Regarding the attestations of series *NJ, both inherited and diffused lexical material occurs. In total, the series is defined by the following 16 items:

022 arm	330 snake (CB *-jókà C.S. 952)	456 path (CB *-jìdà C.S. 940)
051 sweat	331 lizard	488 seven
177 judge (Eng. *judge*)	335 bee (CB *-júkì C.S. 962)	582 good
265 field (Sw. *kiwanja*)	375 to exchange (Eng. *exchange*)	590 black (CB *-yídù C.S. 2037)
267 to dig	381 hunger (Sw. *njaa*)	
316 elephant (CB *-jògù C.S. 951)	431 star	

*Table 25: Lexical attestations of series *NJ*

In five out of the following six cases, regular connections to Common Bantu can be established for most of Central Kenya Bantu:

(7)	316 elephant	CB *-jògù C.S. 951	>	*njɔgu*	all of CKB except for
			>	*nzɔu*	Kamba
	330 snake	CB *-jókà C.S. 952	>	*njɔka*	all of CKB except for
			>	*nzɔka*	Kamba and
		Sw. *nyoka*	>	*ɲɔka*	Gikuyu, Ndia, Gichugu
	335 bee	CB *-júkì C.S. 962	>	*njʊkɪ*	all of CKB except for
			>	*nzʊkɪ*	Kamba
	381 hunger	CB *-jàdà C.S. 917	>	*nzaa*	only in Kamba
		Sw. *njaa*	>	*njaa*	only in Murang'a
	456 path	CB *-jìdà C.S. 940	>	*njɪra*	all of CKB except for
			>	*nzɪa*	Kamba
			≠	*ka.sɪla*	Kamba
			≠	*ga.sɪra*	Murang'a, Ndia, Gichugu
			≠	*ga.cɪra*	Kiambu, Mathira

590 black	CB *-yídù C.S. 2037	≠	*njiru*	all of Eastern except for
		≠	*mbirU*	Embu, Mbeere, and
		≠	*njirU*	Tharaka; Western
		≠	*nziU*	Kamba

In the case of *snake* of example (7), the western dialects of Gikuyu, Ndia, and Gichugu show a form that is not directly related to Common Bantu but seems to be borrowed from Swahili *nyoka* 'snake'. If these dialects had inherited the Common Bantu item, we could expect them to agree with the regular forms in the remaining varieties. In regard to the item *hunger*, only Kamba shows a regular form related to Common Bantu, while unrelated forms occur in the majority of Central Kenya Bantu. The Gikuyu dialect of Murang'a shows *njaa* under this keyword. This word goes back to Swahili *njaa* 'hunger'. It seems unlikely that only Murang'a would have inherited this form, while the remaining Gikuyu dialects show unrelated items, such as *kU.ɦuta*. Moreover, if a regular relation to Common Bantu were the case in Murang'a, the form **njara* would be expected (CB *d > /r/).

The skewed forms *ka.sıla*, *ga.sıra*, and *ga.cıra* listed under the keyword *path* in example (7) also indicate borrowing. In these cases, however, Swahili can be ruled out as a donor. The formal diversity of the items under the keyword *black* in (7) above suggests borrowing as well.

The majority of cases in (7) indicates, however, that the synchronic segment /nj/ in Central Kenya Bantu relates to Common Bantu *j plus nasal. In the case of the keyword *black*, no such relation seems to exist, rendering the listed items *njiru, mbirU,* etc. to be skewed in shape. The relatively high diversity of the forms for *black* may, therefore, be understood as a secondary indication of borrowing.

In addition, there are two English loanwords and one from Swahili in this series, all of which are relatively restricted in distribution:

(8)	177 judge	Eng. *judge*	>	*njanji*	Miutini (11, 15), Mwimbi (20), Muthambi, Embu, Mbeere, Tharaka, Murang'a
	265 field	Sw. *kiwanja*	>	*kı.gwanja*	Muthambi
			>	*kı.wanza*	Kamba (48, 65, 69, 88, 92)
	375 to exchange	Eng. *exchange*	>	*-cınjania*	Muthambi (24), Chuka (28), Embu (35), Mbeere (36, 39b), Nyeri, Mathira
			>	*-sınjania*	Murang'a, Ndia, Gichugu

Moreover, the following items attest to the correspondence series *NJ: *022 arm*, *051 sweat*, *267 to dig*, *331 lizard*, *431 star*, *488 seven*, and *582 good*. Almost all of the relevant items under these keywords (except for *to dig* and *seven*) are relatively restricted in distribution. It remains unclear in these cases whether inheritance or contact is the major factor.

In sum, however, five out of 16 items in *NJ attest to a direct relation between Central Kenya Bantu and Common Bantu. Consequently, the phonetic differences that divide this group into a total of six, as shown in table 24, is, possibly, due to linguistic divergence. The fact that this series *NJ coincides in some dialects with the series *NC_1 discussed next suggests that there are horizontal language relations to be considered.

- *Correspondence Series *NC_1*

In phonetic terms, the series *NC_1 divides Central Kenya Bantu into a total of seven groups, presented in the following table 26, which also shows the overlapping between *NC_1 and *NJ in the Western dialects, Embu-Mbeere, and Kamba:

Western	Embu-Mbeere	Eastern				Kamba
[nʒ] = *NJ	[nʐ] = *NJ	[ndʃ]	[n^{d}ʃ]	[$n^{ʔ}$ʂ]	[ntʃ]	[nz] = *NJ
Gikuyu Ndia Gichugu	Embu Mbeere	Mwimbi Muthambi Igoji	Chuka Nkubu Imenti	Miutini	Tharaka	Kamba

*Table 26: Phonetic realizations in Correspondence Series *NC_1*

The series is established by six lexical items:

004 hair (CB *-jʊ́ídí C.S. 967)	277 barn	368 iron (CB *-yúmà C.S. 2162)
037 anklebone	290 cock	403 pepper

*Table 27: Lexical attestations of series *NC_1*

For the two items *hair* and *iron*, a connection to Common Bantu can be established. However, the two forms CB *-jʊ́ídí C.S. 967 'hair' and CB *-yúmà C.S. 2162 'iron' listed by Guthrie cannot be related to all the relevant forms in Central Kenya Bantu:

(9) 004 hair CB *-jʊ́ídí C.S. 967 > *nju̱ɪːrɪ* Miutini (11), Igoji (16a), Mwimbi, Muthambi, Chuka, Embu, Mbeere, Western

> *nzwɪɪ* Kamba

≠ *nciʊri* Imenti (1a), Miutini (7, 8)

≠ *ncʊʊri* Imenti (1b), Nkubu (3), Miutini (9)

"Meru"

368 iron (CB *-yúmà C.S. 2162)

Sw. *chuma* > *ncuːma* all of Eastern Kirinyaga

(> *cuma* Western Kirinyaga)

(> *suma* Kamba)

The form *nju̱ɪːrɪ* 'hair', occurring, for example, in Embu-Mbeere and Gikuyu, as well as the corresponding Kamba form *nzwɪɪ* are related to Common Bantu. As Möhlig (1974a: 111)

points out, the former seems to have spread into some locations on the eastern foothills of Meru, where it replaced other genuine forms, such as *ntundu*. This is indicated in example (9) above by the fact that the Meru dialects of Imenti, Nkubu, and Miutini show restricted distribution of the forms *nciUri* and *ncUUri* respectively. Consequently, only parts of Central Kenya Bantu seem to have retained the relevant Common Bantu form. The aberrant shape of *nciUri* and *ncUUri* as well as their restricted distribution indicates that they were borrowed, most likely from the west counterclockwise around Mount Kenya.

In the case of *iron*, a number of partially divergent forms are attested (see the relevant synopsis in appendix B for a full overview). In the context of the series *NC_1, the only relevant form is *ncu:ma* presented above in (9), as it is the only form under the keyword *iron* to be included in the series *NC_1. The aberrant shape of this form indicates that it was borrowed from Swahili rather than inherited from Common Bantu. If the Common Bantu item had been retained by the relevant varieties, a form such as **ɲuma* would be expected (cf. *011 nose*: CB *-yúdù C.S. 2151 > *ɲU:rU* in CKB; *040 flesh*: CB *-yàmà C.S. 1909 > *ɲama* in CKB). However, Central Kenya Bantu shows mainly forms borrowed from Swahili when denoting the concept of iron (cf. Möhlig 1974a: 160).

Under the keywords *anklebone*, *barn*, and *pepper*, all items in series *NC_1 show highly restricted distribution. In contrast, the items for *cock* show widespread distribution:

(10)	037 anklebone	*ncUŋUrU, ncaŋUrU*	Meru: Nkubu (3-5), Miutini
		ncuŋirU	Igoji (13-15)
		ncu:girU	Chuka (26, 27)
	277 barn	*ncuku*	Meru: Imenti, Nkubu, Miutini
	290 cock	*ncamba*	all of Eastern Kirinyaga
		njamba	Western
		nzamba	Kamba
	403 pepper	*ncini*	Meru (Imenti, Nkubu, Miutini), Igoji, Mwimbi, Muthambi (24,25), Chuka, Tharaka

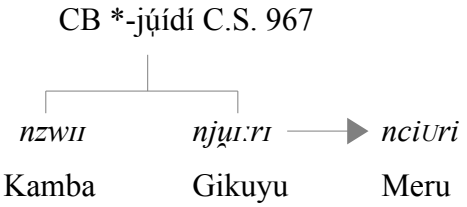
In all of the above cases in (10), no connection to Common Bantu can be established. Moreover, except for the forms listed under the keyword *cock*, none of the items above is able to connect Central Kenya Bantu as a whole in this series. Based on the highly restricted distribution of these items it seems safe to assume that they are not archaic forms:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
	Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
004 hair	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
037 anklebone									x			x	x	x						
277 barn													x	x	x					
290 cock	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
368 iron							x	x	x	x	x	x	x	x	x	x	x			
403 pepper									x		x	x	x	x	x	x	x			

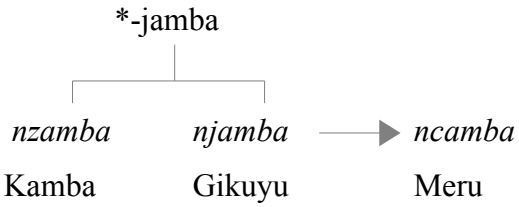
*Table 28: Distribution of lexical items establishing correspondence series *NC$_1$*

The relatively low amount of lexical attestations renders the qualitative assessment of this series difficult. However, in view of the fact that in the Western dialects, Embu-Mbeere, and Kamba the series *NC$_1$ coincides with series *NJ, contact processes need to be considered, that can explain the merger of these two series. The two cases of (a) *hair* and (b) *cock* may serve to illustrate this in the comparison between Gikuyu, Kamba, and Meru:
The two series *NJ and *NC$_1$ are both represented by the segments /nj/ in Gikuyu and /nz/ in Kamba, respectively, while the two series diverge in Meru. The two synchronic segments /nj/ (Gikuyu) and /nz/ (Kamba) correspond regularly according to the series *NJ, defined by a number of Common Bantu cognates (see example 7 above). Accordingly, the forms *njṵːrɪ* (Gikuyu) and *nzwɪɪ* (Kamba) 'hair' correspond regularly. The same holds for the two forms *njamba* (Gikuyu) and *nzamba* (Kamba). In both cases, the Meru dialects show irregular shapes, which suggests that – unlike Gikuyu and Kamba – these dialects have borrowed the relevant forms. This claim may be formalized as follows:

(11) a) 004 hair



b) 290 cock



In the Meru dialects, the relevant forms seem to be borrowed. In the case of (a) *hair*, it seems likely that the source item of Meru *nciʊr i* originates from Gikuyu and was eventually transferred via intermediate languages into Meru. In the case of (b) *cock*, both Gikuyu and Kamba are plausible donor languages for the Meru form *ncamba*.
The historical affiliations within Central Kenya Bantu in regard to the series *NJ and *NC$_1$ may be summarized as follows: The Western dialects, Embu-Mbeere, and Kamba seem to be connected on the basis of shared innovations, i.e. through genealogical affiliations. The remaining varieties seem to connect to these three groups on the basis of language contact. In other words, the fact that a correspondence series *NC$_1$ can be established seems to be due to diffusion into Eastern, whereas the series *NJ seems to be based on inheritance.

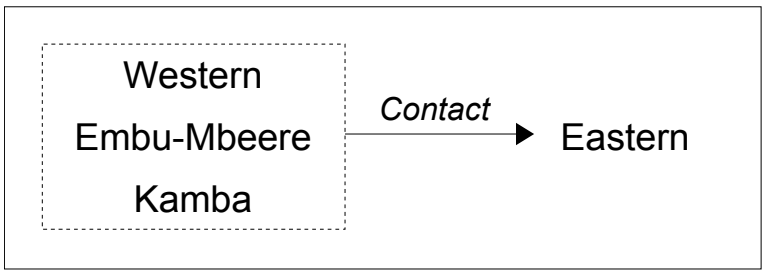


Figure 10: Diffusion into Eastern

*b) Correspondence Series *NK and *NG*

- *Correspondence Series *NK*

The correspondence series *NK represents an isogloss that divides Central Kenya Bantu into two groups: On the one side, there are the western dialects of Gikuyu, Ndia, and Gichugu as well as Embu-Mbeere and Kamba, all showing a voiced realization of *NK. On the other side are all remaining varieties showing a corresponding voiceless segment. In the former group, the series *NK merges with the series *NG, which is characterized by the segment /ng/ all throughout Central Kenya. Table 29 depicts the two groups defined by *NK including the merger with series *NG:

Western-Embu-Mbeere-Kamba	Eastern
/ng/ = *NG	/nk/ ≠ *NG
West: Gikuyu, Ndia, Gichugu Embu Mbeere Kamba	Chuka Mwimbi Muthambi Igoji Miutini Nkubu Imenti Tharaka (Meru)

*Table 29:Phonetic realizations in correspondence series *NK*

The series *NK is established by 18 lexical items:

020 neck (CB *-kịngò C.S. 1086)	218 firewood (CB *-kúị̀ C.S. 118)	346 guinea fowl (CB*-kángà 1010)
023 armpit (CB *-kúàpá C.S. 1171)	231 to strain (CB *-cùng- C.S. 419)	413 hat (Sw. *kofia*)
045 heart (CB *-kódò C.S. 1115)	240 mortar	438 thunder
132 baby	282 cow (CB *-ká C.S. 970)	478 alone
150 to give (CB *-nị̀nk- C.S. 1363)	292 dog	517 different
160 quarrel	320 leopard	549 to stink (CB *-nụ̀nk- C.S. 1386)

*Table 30: Lexical attestations of series *NK*

Two items, *to give* and *to stink*, suggest that the series *NK represents *nk of Common Bantu:

(12)	150 to give	CB *-nɨ̀nk- C.S. 1363	>	*-nɛnkɛra*	e.g. Mwimbi
			>	*-nɛngɛra*	e.g. Embu
	549 to stink	CB *-nù̀nk- C.S. 1386	>	*-nunka*	e.g. Mwimbi
			>	*-nunga*	e.g. Embu

In other cases, the relevant segments seem to originate from a prenasalization in class 9, e.g.:

(13)	020 neck	CB *-kɨ̀ngò C.S. 1086	>	*nki:ngɔ*	e.g. Mwimbi
			>	*ngi:ngɔ*	e.g. Embu
	045 heart	CB *-kódò C.S. 1115	>	*nkɔrɔ*	e.g. Mwimbi
			>	*ngɔrɔ*	e.g. Embu

In one case, formal aberrance is attested, i.e. /nk/ in the dialects on the eastern slopes of Mt. Kenya connects to Common Bantu *ng:

(14)	231 to strain	CB *-cùng- C.S. 419	≠	*-cunka*	e.g. Chuka
			≠	*-cunga*	e.g. Embu

If the two forms in example (14) were inherited from Common Bantu, we could expect CB *c to be reflected as /ð/, i.e. **-ðunga* would be expected. In Guthrie's terms, the above form *-cunka* needs to be considered as 'extraneous', i.e. it is deemed aberrant on the basis of more than one feature, /c/ and /nk/. Both *-cunka* and *-cunga* need to be considered irregular, which suggests that they were borrowed from languages outside Central Kenya Bantu.
The same seems plausible in the case of *armpit*, which shows five partially divergent word forms:

(15)	023 armpit	CB *-kúàpà C.S. 1171	≠	*nkua:*	Meru: Imenti, Nkubu, Miutini; Igoji
			≠	*nkɔ:a*	Mwimbi, Muthambi
			≠	*nkuɔ:ba*	Chuka
			≠	*nga:bua*	Embu, Mbeere
			≠	*nkɔ:a:*	Tharaka

None of the items listed in (15) is regularly related to the relevant Common Bantu item. The Common Bantu segment *p is usually reflected as /ɦ/ in most of Central Kenya Bantu. If direct inheritance were the case in the above instance of (15), we could expect to find forms such as **nkuaɦa*, for example, in Tharaka or Chuka. The relatively high diversity as well as

the formal aberrance of the items in (15) suggests borrowing. Swahili *kwapa* 'armpit' is a possible source word, especially for *nkuɔ:ba* in Chuka and *nga:bua* in Embu and Mbeere.
In the case of *hat*, borrowing from Swahili seems likely as well: We find six partially divergent word forms, which all go back to Swahili *kofia* 'hat', a word of Arabic origin:

(16)	413 hat	Sw. *kofia*	>	*nkɔβia*	Meru: Imenti, Nkubu, Miutini
			>	*nkɔɦia*	Igoji, Mwimbi, Muthambi, Chuka
			>	*ngɔvia*	Embu, Mbeere
			>	*ngɔɦia*	Gikuyu: Nyeri
			>	*ngɔβia*	Gikuyu: Nyeri, Kiambu, Murang'a, Gichugu; Kamba

Six out of of 18 lexical attestations in series *NK show regular connections with Common Bantu. The synchronic items /ng/ and /nk/ are related to the Common Bantu segment /nk/ on the one hand (see example 12 above); on the other hand, they seem to be the result of a pre-nasalization in class 9 (see example 13 above).
In the western dialects as well as Embu-Mbeere and Kamba, the Common Bantu segment *nk seems to have been weakened by voicing. This type of change is a cross-linguistically frequent strategy of alleviating pronouncing (cf. Krefeld 2001). Consequently, in strictly formal terms, the difference between voiceless and voiced segments in series *NK seems to be non-diagnostic regarding the question of inheritance versus contact. However, two facts may be of historical significance in this context:
(1.) The series *NK merges with the series *NG in the western dialects as well as Embu-Mbeere and Kamba; the overlapping of two or more series may suggest language contact and, therefore, demands a closer investigation (see below).
(2.) The voicing of pre-nasalized plosives is also observed in the context of series *NT in the very same dialects – Western, Embu-Mbeere, and Kamba. This type of marked distribution is further discussed in the following paragraphs.

- *Correspondence Series *NG*

The series *NG itself requires little attention from a synchronic point of view as it is non-diagnostic in dialectometrical terms: In all of Central Kenya Bantu, the series is represented by the same segment /ng/, which relates to Common Bantu *ng. The following two examples may suffice to illustrate this:

(17)	030 back	CB *-gongo C.S. 858	>	*mU.(g)ɔngɔ*	all of CKB
	201 door	CB *-dàngò C.S. 552	>	*mU.(r)angɔ*	all of CKB

The discussion of the series *NK above showed that the two series *NK and *NG merge in the western dialects as well as in Embu-Mbeere and Kamba (see table 29). Both series are connected to Common Bantu. The historical background of these series may be formalized as follows:

(18) a) Western, Embu-Mbeere, Kamba b) all remaining varieties (Eastern)

The situation depicted in a) of example (18) represents the merger of the two series *NK and *NG in the relevant varieties. It constitutes a phoneme merger as defined in section 2.3.1, i.e. a collapse of two phonemes into one category (Hamann 2015). In such an instance, it can never be ruled out that this type of linguistic development is due to internal language change, e.g. weakening of a segment for the ease of articulation. However, the fact that this particular type of merger occurs only in the western dialects as well as in Embu-Mbeere and Kamba may be of historical importance: The same process, i.e. voicing of pre-nasalized stops, is also attested in the neighboring Maasai language. Moreover, the merger of two series *NT and *ND discussed next attests to the same process in the very varieties that show a merger of *NK and *NG.

*c) Correspondence Series *NT and *ND*

- *Correspondence Series *NT*

The series *NT divides Central Kenya Bantu into two groups: Western, Embu-Mbeere, and Kamba versus all remaining varieties. In the former group, the series coincides with the series *ND:

Western-Embu-Mbeere-Kamba	Eastern
/nd/ = *ND	/nt/ ≠ *ND
Western: Gikuyu, Ndia, Gichugu Embu Mbeere Kamba	Eastern: Chuka, Mwimbi, Muthambi, Igoji, Miutini, Nkubu, Imenti, Tharaka Meru: Miutini, Nkubu, Imenti

*Table 31: Phonetic realizations in correspondence series *NT*

The series is defined by 22 lexical items. In the majority of these cases, no connection to Common Bantu may be established, as most of the relevant items are non-cognate to the forms constructed by Guthrie (1967-71) – only six cases relate to Common Bantu:

004 hair	090 to squat	249 hammber (CB *-dòndò C.S.
005 forehead	116 mother	706)
033 breasts	215 smoke	251 axe
060 blind	240 mortar	285 donkey

300 to pierce	453 mud (CB *-tàká C.S. 1649)	525 day (CB *-tʊ́kù C.S. 1864)
317 giraffe (CB *-tùìgà ps 469)	458 place (CB *ntù C.S. 1798)	
387 thirst (CB *-yótà C.S. 2137)	459 village	
398 beans	474 number	
423 darkness	476 crowd	

*Table 32: Lexical attestations of correspondence series *NT*

The low amount of Common Bantu cognates in this series renders it difficult to assess from which Common Bantu item the synchronic segments /nt/ and /nd/ originate. In the following case, it seems, the segments are the result of prenasalization in class 9:

(19)	453 mud	CB *-tàká C.S. 1649	>	*ntaka*	e.g. Chuka
			>	*ndaka*	e.g. Embu

In the case of *place,* the two segments /nt/ and /nd/ are connected to *nt in Common Bantu:

(20)	458 place	CB *ntù C.S. 1798	>	*gU.UntU*	e.g. Nkubu
			>	*ɦa.ndU*	Gikuyu
			>	*βa.ndU*	Kamba

In regard to the item *thirst*, the relevant segments seem to originate from a stem-internal prenasalization of Common Bantu *t:

(21)	387 thirst	CB *-yótà C.S. 2137	>	*ɲɔnta*	e.g. Chuka
			>	*ɲɔnda*	e.g. Embu

Finally, the Common Bantu item *-dòndò C.S. 706 'hammer' is reflected as *ɲɔndɔ* and *ɲɔntɔ* in Central Kenya Bantu. As Common Bantu *nd is generally retained as /nd/ in all of Central Kenya Bantu (cf. series *ND discussed next), this item shows formal aberrancies or – in Guthrie's words – a skewed shape.

Most of the attesting items in this series show relatively restricted distribution, which may generally be understood as a secondary indication of borrowing. Some of these items do not connect Central Kenya Bantu as a whole and are limited to the dialects on the eastern slopes of Mount Kenya, i.e. the varieties showing the voiceless segment /nt/ (see appendix A for a distributional overview of all items in this series).

If we assume borrowing within Central Kenya in some cases, the most probable direction may be described as follows: It seems likely that the relevant items, for which borrowing may be assumed, originate on the eastern slopes from where they spread into other varieties. The case of *beans* may exemplify this:

(22)	398 beans	*ntunu* all of Chuka	vs.	*ndunu*	Embu (31)

For distributional reasons, it seems clear that Chuka is the donor of the above form in (22), as *ntunu* is attested for all of Chuka, whereas only one location in Embu shows the corresponding form *ndunu*. This particular borrowing direction seems plausible as well from a

formal perspective: There is no reason to assume that a Chuka speaker would incorporate a word like *ndunu* as *ntunu* (voiceless), as Chuka has /nd/ at its disposal.
Lexical borrowing, however, does not seem to be the most important factor in the qualitative assessment of this series. Due to the low amount of archaic word forms attesting to *NT, it is difficult to judge how this series connects to Common Bantu. However, the case of *place* in example (20) above allows us to hypothesize that the segment /nt/ on the eastern slopes of Mount Kenya relates to Common Bantu *nt. In the western dialects, Embu-Mbeere, and Kamba, this segment seems to have merged with Common Bantu *nd, resulting in a collapse of the series *NT and the series *ND discussed next.

- *Correspondence Series *ND*

The series *ND is represented by the segment /nd/ all throughout Central Kenya Bantu and, therefore, non-diagnostic from a synchronic perspective. The following two items exemplify that /nd/ relates to Common Bantu *nd in all of Central Kenya Bantu:

(23)	107 to love	CB *-yènd- C.S. 1974	>	*-ɛnda*	all of CKB
	260 knot	CB *-kʊ́ndò C.S. 1272	>	*-kundɔ*	all of CKB except for
			>	*-kundwa*	Meru, Igoji

The two examples in (23) show that in regard to the series *ND all varieties relate to Common Bantu, i.e. they have retained the relevant segment *nd as /nd/. There is a number of external and internal loanwords to be found in this series. For example, under the keyword *garden* and under the keyword *donkey*:

(24)	209 garden	CB *-gùndà C.S. 897	>	*mU.gUnda*	e.g. Gikuyu
			>	*mU.Unda*	Kamba
			≠	*m.uunda*	Meru: Imenti, Nkubu
	285 donkey	Sw. *punda*	>	*mbunda*	Chuka, Embu, Mbeere

In the case of *garden*, Gikuyu and Kamba have retained the Common Bantu item. The two Meru dialects Imenti and Nkubu show a similar form, which is, however, to be considered irregular: If Imenti and Nkubu had retained the Common Bantu form, we could expect to find a word showing /g/, such as *-*gunda*. The aberrant shape of the Meru form *m.uunda* indicates that it was borrowed from Kamba, where Common Bantu *g relates to a lenis consonant.
In the case of *donkey*, it is obvious that Chuka, Embu, and Mbeere have borrowed a Swahili word. In all of these cases, the respective loans have been incorporated into the sound systems of the relevant varieties. In other words, mutual borrowing of a Swahili word like *punda* has no effect on the phonological affiliations between the relevant languages.
The most important aspect in this series is, however, the factor of genetic inheritance, i.e. retention of Common Bantu *nd. Nevertheless, the fact that in the western dialects, Embu-

Mbeere, and Kamba, this series *ND merges with the series *NT discussed above may indicate that language contact has played a role in the context of these two series:
Based on the instance of *place* (CB *ntù C.S. 1798 > *gʊ.ʊntʊ* in Meru) in example (20) above, we may hypothesize that the series *NT relates to Common Bantu *nt. The series *ND, in turn, relates to Common Bantu *nd, as shown by the examples in (23), e.g. CB *-yènd- C.S. 1974 > *-ɛnda*. In this view, Common Bantu *nt seems to have merged with Common Bantu *nd in the western dialects as well as Embu-Mbeere and Kamba:

(25) a) Western, Embu-Mbeere, Kamba b) all remaining varieties (Eastern)

It cannot be ruled out that the merger described in (25) is due to internal language change, i.e. parallel developments, in the western dialects, Embu-Mbeere, and Kamba. However, it also seems plausible that the weakening of voiceless segments may be due to language contact with Maasai, where the same type of voicing of pre-nasalized plosives is attested (Tucker and Mpaayei 1955, Heine 1980). The relevant Bantu varieties of Central Kenya are or used to be adjacent to Maasai territory (Tucker and Mpaayei 1955). The oral traditions presented in section 1.2.2 on the extra-linguistic background provide a plausible contact scenario to support the claim that Maasai influence has caused the merger described in (25a): In times of famine, many Maasai would seek refuge among their Bantu neighbors, eventually being integrated into their society and shifting to speak Gikuyu, Kamba, and Embu or Mbeere. A more detailed discussion of this type of contact (substrate influence) is presented in chapter 4.

***

In the previous paragraphs, I discussed three instances of merging correspondence series in the western dialects as well as Embu-Mbeere and Kamba:

- the merger of *NJ and *NC_1
- the merger of *NK and *NG
- the merger of *NT and *ND

In all three cases, the mergers seem to be the result of language contact. In the first case, the merger of *NJ and *NC_1, it seems that the western dialects, Embu-Mbeere, and Kamba have had some lexical impact on the remaining varieties of Central Kenya Bantu: In both cases, *NJ and *NC_1, inherited segments occur in the western dialects, Embu-Mbeere, and Kamba. The remaining varieties diverge, i.e. they show irregularly corresponding lexical shapes, that seem to have been borrowed from the dialects where the two series coincide. In the remaining two cases, language contact with Maasai in Western, Embu-Mbeere, and Kamba seems to be responsible for the mergers of *NK and *NG as well as *NT and *ND respectively.
In sum, the merger of *NJ and *NC_1 separates the western dialects, Embu-Mbeere, and Kamba from the remaining varieties on the one hand; mutual contact with Maasai, on the other hand, additionally distances Western, Embu-Mbeere, and Kamba from the remaining varieties on the eastern slopes of Mount Kenya.

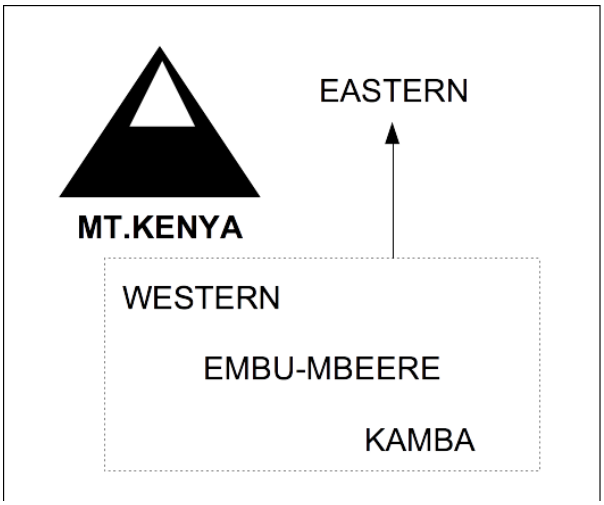


*Figure 11: Diffusion into Eastern (attested to by *NJ vs. *NC$_1$)*

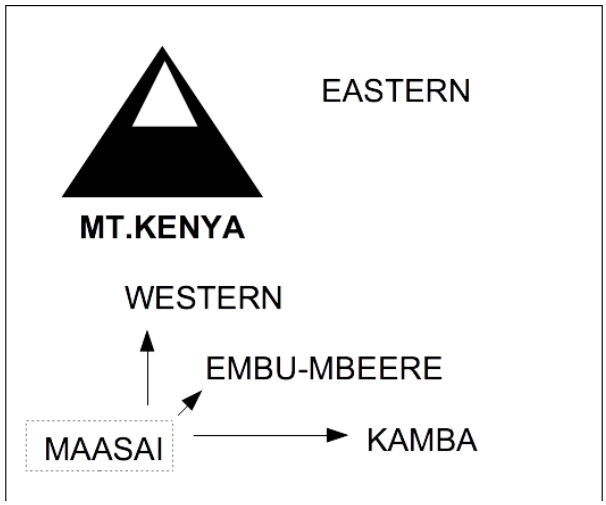


*Figure 12: Diffusion from Maasai into Western, Embu Mbeere, and Kamba (attested to by *NK vs. *NG and *NT vs. *ND)*

(3) Multiple correspondence series

The term 'multiple correspondence series' denotes any series that coincides with more than one other series in certain dialects. In other words, it describes the fact that a specific segment in one dialect may recurrently correspond to more than one segment in another dialect.

*a) Correspondence Series *C*

The first set of merging series to be discussed here involves a complex of four correspondence series labeled *C, i.e. *C$_1$/_/a, ɛ, ɪ, ɔ, ʊ/, *C$_1$/_/i, u/, *C$_2$, and *C$_3$. The following table shows the distributional pattern of the relevant mergers:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
Series	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
*C$_1$/_/i, u/	tʃ	s	tʃ	tʃ	s	s	tʂ	tʂ	tʃ	tʃ	ʔʂ	ʔʂ	ʔʂ	ʃ	dʃ	tʃ	ʃ	ʂ	ʂ	ʂ
*C$_1$/_/a, ɛ, ɪ, ɔ, ʊ/	tʃ	s	tʃ	tʃ	s	s	ʃ	ʃ	ʃ	tʃ	ʔʂ	ʔʂ	ʔʂ	ʃ	dʃ	tʃ	ʃ	ʂ	ʂ	ʂ
*C$_2$	ð	ð	ð	ð	ð	ð	ʃ	ʃ	ʃ	tʃ	ʔʂ	ʔʂ	ʔʂ	ʃ	dʃ	tʃ	ʃ	ʂ	ʂ	ʂ
*C$_3$	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð

*Table 33: Mergers of *C$_1$/_/a, ɛ, ɪ, ɔ, ʊ/, *C$_1$/_/i, u/, *C$_2$, and *C$_3$*

Table 33 shows the multiple mergers of the series labeled *C (the grey areas indicate that no merger occurs): *C$_1$/_/a, ɛ, ɪ, ɔ, ʊ/ and *C$_1$/_/i, u/ merge in all dialects except for Embu-Mbeere and Chuka. This is due to the fact that Embu-Mbeere and Chuka exclusively obey to

a phonological rule in series *C_1, i.e. the affrication of /c/ in front of the high vowels /i/ and /u/. The series *C_2, in turn, merges with two series: In the western dialects, it merges with *C_3, while it overlaps with *C_1 in all remaining varieties.

- *Correspondence Series *C_1*

This series is divided into *C_1/_/a, ɛ, ɪ, ɔ, ʊ/ and *C_1/_/i, u/ to acknowledge the fact that Embu, Mbeere, and Chuka diverge from the remaining varieties in regard to phonological rules governed by the vocal environment: Embu-Mbeere and Chuka obey to the rule /c/_/i, u/ > [tʂ] and /c/_/i, u/ > [tʃ], respectively. The series *C_1/_/a, ɛ, ɪ, ɔ, ʊ/ divides Central Kenya Bantu into a total of six groups:

[tʃ]	[s]	[ʃ]	[ˀʂ]	[dʃ]	[ʂ]
Kiambu Nyeri Mathira Muthambi E-Tharaka	Murang'a Ndia Gichugu	Embu Mbeere Chuka Nkubu W-Tharaka	Mwimbi Igoji Miutini	Imenti	Kamba

*Table 34: Phonetic realizations in correspondence series *C_1/_/a, ɛ, ɪ, ɔ, ʊ/*

As Embu-Mbeere and Chuka diverge in regard to series *C_1, the sub-series *C_1/_/i, u/ divides Central Kenya Bantu into a total of seven groups:

[tʃ]	[s]	[tʂ]	[ʃ]	[ˀʂ]	[dʃ]	[ʂ]
Kiambu Nyeri Mathira Chuka Muthambi E-Tharaka	Murang'a Ndia Gichugu	Embu Mbeere	Nkubu W-Tharaka	Mwimbi Igoji Miutini	Imenti	Kamba

*Table 35: Phonetic realizations in Correspondence Series *C_1/_/i, u/*

The series *C_1/_/a, ɛ, ɪ, ɔ, ʊ/ is established by 24 lexical items, with a relatively large amount of external loanwords:

094 to return /	231 to strain (CB *-cúng- C.S. 419)	408 rice (Sw. *mchele*)
145 to answer (Maa. *a-shúk)*	247 bottle (Sw. *chupa*)	414 shirt (Sw. *shati*)
108 friend (Maa. *ol-coré*)	268 hoe (Sw. *jembe*)	417 to iron (Sw. *-piga pasi*)
162 to slap	321 lion (Sw. *simba*)	456 path (CB *-jìdà C.S. 940)
173 to insult	342 bird	521 end (Sw. *mwisho*)
177 judge	366 to carve (Cush. *sup)	528 morning
200 window (Sw. *dirisha*)	378 money (Sw. *pesa*)	558 to taste (Maa. *à-ìshám.ìshám*)
224 to boil (Sw. *-chemka*)	398 beans	579 narrow

*Table 36: Lexical attestations of series *C_1/_/a, ɛ, ɪ, ɔ, ʊ/*

The sub-series *C_1/_/i, u/ is, in turn, established by ten lexical items:

258 mirror	300 to pierce	531 tomorrow
261 to hang up	368 iron (Sw. *chuma*)	552 to think
267 to dig (Sw. *-chimba*)	395 orange (Sw. *chungwa*)	
291 cat	421 to plait (Sw. *-suka*)	

*Table 37: Lexical attestations of series *C_1/_/i, u/*

The fact that all Central Kenya Bantu languages can be connected through the series *C_1/_/a, ɛ, ɪ, ɔ, ʊ/ and *C_1/_/i, u/ seems to be due to parallel borrowing. The wordlists above show a relatively large amount of loanwords from Swahili and Maasai.
Two cases show some connection to Common Bantu, however, an irregular one, i.e. it seems unlikely that the relevant forms have been inherited by Central Kenya Bantu. It is more likely that they were borrowed from other Bantu languages, in some cases from Swahili. In the following example (26), Common Bantu items can be identified that are similar to the items attested by Central Kenya Bantu; it is evident, however, that the Common Bantu items are not the origins of the relevant forms in Central Kenya. In other words, direct inheritance from an archaic meta language can be ruled out for the following cases:

(26)	231 to strain	CB *-cúng- C.S. 419	≠	*-cunka*	Chuka
			≠	*-cunga*	Embu, Mbeere, Gikuyu
			≠	*-sunga*	Kamba
			expected regular form:		**-ðunga*
	247 bottle	CB *-cúpà C.S. 426	≠	*mʊ.cu:ba*	all of CKB except
			≠	*mʊ.cʊ:ba*	Mbeere
			≠	*cʊʊba*	Tharaka
			≠	*sʊba*	Kamba
			≠	*cuba, suba*	Western
			expected regular form:		**-ðuɦa*
	321 lion	CB *-cíṃbà C.S. 357	≠	*cimba*	Igoji (16), Mwimbi Muthambi (24), Chuka, Embu, Mbeere, Tharaka (40, 42b), Nyeri
			≠	*simba*	Murang'a, Ndia, Gichugu
			expected regular form:		**-ðimba*

The claim that none of the forms listed in (26) is inherited is based on two considerations: On the one hand, all of these items show formal aberrance, i.e. they show /c/ when /ð/ is expected. In the case of *to strain* and *bottle* we even find "extraneous" (Guthrie Vol. 2: 20) items, i.e. they are considered irregular based on more than one deviant feature. On the other hand, some of the items above are restricted in distribution – an additional indication that these forms are likely to have been borrowed.
In total, 14 Swahili loanwords and four instances of borrowing from Maasai as well as one case of borrowing from Southern Cushitic can be identified in the series *C_1 (cf. tables 36 and 37). Based on the relatively restricted distribution, we may even assume borrowing for the majority of lexical items in this series, even though a relevant source word cannot be identified in each case.
The semantic background of the items listed in table 36 and 37 seems to support the claim that language contact is the most significant factor in series *C_1, as most of these items constitute cultural vocabulary. The Swahili loanwords mostly denote concepts connected to trade relations (e.g. *200 window*, *378 money*, *408 rice*, *414 shirt*). The Maasai loanwords may indicate the significance of social interactions between Bantu speakers and their Maasai neighbors (e.g. *094 to return / 145 to answer*, *108 friend*).

- *Correspondence Series* *C_2

The correspondence series *C_2 is exclusively established by Swahili loanwords. We may say that this series is 'intermediate' between the series *C_1 and *C_3 (based on the overlapping with these two series in different dialects). The distributional pattern of the relevant mergers divides Central Kenya Bantu into two: In the western dialects, *C_2 merges with the series *C_3, while it merges with *C_1 in all remaining varieties.

The series divides Central Kenya Bantu into six groups on phonetic grounds:

[ð] = *C_3	[ʃ] = *C_1	[tʃ] = *C_1	[ˀʂ] = *C_1	[dʃ] = *C_1	[ʂ] = *C_1
Western: Gikuyu Ndia Gichugu	Embu Mbeere Chuka Nkubu W-Tharaka	Muthambi E-Tharaka	Mwimbi Igoji Miutini	Imenti	Kamba

*Table 38: Phonetic realizations in Correspondence Series *C_2*

The series *C_2 is established by the following five items:

039 skin (Sw. *ngozi*)	379 cheap (Sw. *raisi*)	418 stockings (Sw. *soksi*)
179 to accuse (Sw. -*shtaka*)	415 shorts (Sw. *suruali*)	

*Table 39: Lexical attestations of series *C_2*

The series is entirely based on language contact with Swahili. In other words, if it were not for the Swahili loanwords in table 39, no recurrent sound correspondence between Gikuyu /ð/ and, for example, Embu /c/ would exist. The former segment is represented by the series *C_3 discussed next, while Embu /c/ is represented by the series *C_1. Insofar, the five Swahili items above can be considered multi-valent forms. From a historical perspective, this indicates different waves of Swahili contact.

In the western dialects, the relevant items are integrated into the sound system by the use of the inherited segment /ð/, while the remaining varieties show adaptation in these cases: Kamba speakers have no means of pronouncing Swahili /s/ and, consequently, use the slightly different sound [ʂ] in the attempt of coming as close as possible to the original articulation of the Swahili word. The comparison between Gikuyu and Kamba may exemplify this:

(27)	415 shorts	Sw. *suruali*	>	*ðuruarı*	Gikuyu	integration
			>	*sulualı*	Kamba	adaptation
	418 stockings	Sw. *soksi*	>	*ðɔ:giði*	Gikuyu	integration
			>	*sɔkısı*	Kamba	adaptation

The fact that Gikuyu shows integration (substitution of Swahili /s/ with the inherited Gikuyu segment /ð/) while Kamba shows adaptation suggests that the relevant Swahili words have – so to speak – taken different routes into Central Kenya.

- *Correspondence Series *C_3*

In terms of synchronic variation, the series *C_3 is non-diagnostic, i.e. it is represented by /ð/ all throughout Central Kenya Bantu. This segment relates to Common Bantu *c, as the following two items show:

(28)	006 face	CB *-cị́ú C.S. 347	>	*-ðiU*	all of CKB
	025 left hand	CB *-mócó C.S. 1316	>	*-mɔðɔ*	all of CKB

The fact that all Central Kenya Bantu languages agree in the use of /ð/ is, consequently, based common heritage. Accordingly, the series *C_3 is established by the large amount of 62 lexical items:

005 forehead /	107 elder	198 wall
006 face /	113 husband	204 to enter
007 cheek (CB *-cị́ú C.S. 347)	118 to obey	208 well (CB *-cíḿá C.S. 353)
008 jaw	128 twins (CB *-pácà C.S. 1407)	213 to burn up
012 eye (CB *-yíćòdị́ C.S. 2031)	138 language	224 to boil
025 left hand	147 to help (Sw. *-saidia*)	225 metal pot (Sw. *sufuria*)
(CB *-mócó C.S. 1316)	156 to teach (Sw. *-somesha)*	239 to grind (CB *-cị́d- C.S. 350)
032 chest	157 to learn (Sw. *-soma*)	241 pestle
037 anklebone	171 to hide (CB *-pị̀c- C.S. 1546)	272 to harvest (CB *-kèc- p.s. 287)
054 to sneeze	175 lawsuit	276 stock (of grain)
076 medicine	176 law	279 to keep cattle
079 to go	179 to accuse	280 to herd
093 to follow	184 to command	298 to shoot (CB *-dác- C.S. 449)
100 to swim (CB *-càmb- C.S. 267)	191 to laugh (CB *-cèk- C.S. 312)	331 lizard
101 to jump	192 to play	337 termite (CB *-cúá C.S. 932)

344 wing	468 unripe (CB *-bícì C.S. 102)	564 to bury
351 to finish	487 six (CB *-tándàtú C.S. 166)	581 light
359 to turn	521 end	583 bad
372 market (Sw. *soko*)	522 time (Sw. *saa*)	584 clean (CB *-céd- p.s. 85)
376 debt	526 daytime	
427 to shine	535 angry	
454 sand (CB *-càngà C.S. 288)	552 to think	

*Table 40: Lexical attestations of series *C_3*

The relatively large amount of lexical items in this series (related to Common Bantu) indicates that inheritance is the most important factor in this series. Moreover, most of the items listed above show highly widespread distribution – yet another indication of common heritage. However, we cannot rule out for each instance that language contact has played a role. Some of the items in table 40 belong to the field of cultural vocabulary (e.g. *law, to command*, *debt*, *to bury*) and it is not unlikely that some of these items might have been diffused at a certain time in recent history; their regular shape, however, renders any assumed contact relation intransparent from a synchronic point of view.
In a few instances, we may assume borrowing based on the aberrance of the relevant word forms, e.g.

(29)	468 unripe	CB *-bícì C.S. 102	>	*-ɪðɪ*	Kamba
			≠	*-bɪðɪ*	Eastern Kirinyaga
				expected form: **-ɪðɪ*	
	487 six	CB *-tándàtú C.S. 166	≠	*-ðanðatU*	Eastern Kirinyaga, Kamba
			≠	*-ðatatU*	Western
				expected form: **-tandatu*	

In the case of *unripe* in (29), only Kamba shows a regular form, i.e. the reflexion of Common Bantu *b as a lenis consonant. This can also be expected for the remaining varieties, as Common Bantu *b is generally reflected as /Ø/ in the entire group. The form *-bɪðɪ* is, consequently, skewed in shape. Under the keyword *six*, unexpected forms occur as well. In these instances, we may, assume borrowing – the donor language for *-bɪðɪ* is probably Swahili *-bichi*. The donor of the two items for the keywords *six* is unknown.
In six cases, Swahili can be identified as the donor language. In all these instances, Swahili alveolar fricatives have been substituted by the inherited segment /ð/, e.g.

(30)	157 to learn	Sw. *-soma*	>	*-ðɔːma*	Eastern	integration
			>	*-ðɔma*	Western	integration
	372 market	Sw. *soko*	>	*-ðɔkɔ*	Eastern & Western	integration

In the above two cases of example (30), the Eastern and Western Kirinyaga dialects agree in the integration of Swahili loanwords by substituting Swahili /s/ with the inherited segment /ð/. In this respect, the cases of *to learn* and *market* differ from the Swahili items in series *C_2. In that series, it is shown that integration of Swahili loans by the use of /ð/ is typical of the Western dialects only, while the remaining varieties show adaptation in series *C_2 (cf. table 38 above), i.e. the use of /c/. In the series *C_3, in contrast, the Eastern dialects show integration as well. This contrast may be exemplified by the following cases of Swahili loans in Meru:

(31) a) *C_2 (adaptation in Meru)

379 cheap	Sw. *rahisi*	>	*raiði*	Gikuyu	integration
		>	*raici*	Meru	adaptation

b) *C_3 (integration in Meru)

156 to teach	Sw. *-somesha*	>	*-ðɔ:mɪðia*	Gikuyu	integration
		>	*-ðɔ:mɪðia*	Meru	integration

We may argue that the Swahili attestations of *C_2 and *C_3 represent two different types of Swahili loanwords: In series *C_2, only the Western dialects show adaptation, in the latter, the Eastern do so as well. As the integration of Swahili /s/ as /ð/ seems to be typical of the Western dialects, we may conclude that items such as *-ðɔ:ma* or *-ðɔkɔ* (showing /ð/ all throughout the group, cf. example 30) have been diffused into the Eastern dialects via the Gikuyu language area (if this were not the case we could expect the Eastern dialects to show forms such as **cɔ:ma* or **-cɔkɔ* that would connect to *C_2). The fact that we find different types of Swahili loans corresponds to the spread of colonial Swahili from the western parts of the highlands along the Uganda railway – as opposed to precolonial Swahili contact via Kamba.

*b) Correspondence Series *G and *K*

The next set of correspondence series to be discussed is labeled *G and comprises the series *G/_/a, ɛ, ɪ, ɔ, ʊ/, *G/_/i/, and *G/_/u/. In the context of the series *G, there are mergers with the series *K_2 and *K_3 (Dahl's Law) to be observed.

- *G/_/a, ɛ, ɪ, ɔ, ʊ/
- *G/_/i/
- *G/_/u/
- *K_1
- *K_2 (inconclusive)
- *K_3 (Dahl's Law)

The following table shows the distributional pattern of mergers in the context of the series *G:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
Series	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
*G/_/i/	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	g	g	g	g	g	g	g	g	g	g	g	Ø	Ø	Ø
*G/_/u/	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	g	ɣ	ɣ	g	g	Ø	Ø	Ø
*G/_/a, ɛ, ɪ, ɔ, ʊ/	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	Ø	Ø	Ø
*K$_3$ (Dahl's Law)	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	k	k	k
*K$_2$	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	ɣ	ɣ	k	k	k
*K$_1$	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k

*Table 41: Mergers of *G/_/a, ɛ, ɪ, ɔ, ʊ/, *G/_/i/, *G/_/u/, *K$_1$, *K$_2$, and *K$_3$ (Dahl's Law)*

Table 41 shows the following mergers: The series *G/_/a, ɛ, ɪ, ɔ, ʊ/ merges with both *G/_/i/ and *G/_/u/ in the Western dialects and Kamba. In other words, these varieties do not obey to any phonological rule in regard to the articulation of /g/. The remaining dialects show a plosive articulation of /g/ in front of /i/. Tharaka and Miutini, in turn, are the only varieties to additionally show a plosive pronunciation in front of /u/ (i.e. *G/_/i/ and *G/_/u/ merge in Tharaka and Miutini).
In all dialects with the exception of Kamba, *G/_/a, ɛ, ɪ, ɔ, ʊ/ merges with *K$_3$; i.e. in all varieties except for Kamba, Dahl's Law applies, which results in the weakening of /k/ yielding /ɣ/. The reason why in Tharaka the three series *G/_/a, ɛ, ɪ, ɔ, ʊ/, *K$_3$, and *K$_2$ merge is unclear; the latter series *K$_2$ is discussed below when a few inconclusive cases are dealt with. Finally, the two series *K$_1$ and *K$_2$ merge in all varieties except for Tharaka.

- *Correspondence Series *G*

The series *G is divided into the series *G/_/a, ɛ, ɪ, ɔ, ʊ/, *G/_/i/, and *G/_/u/ to acknowledge the application of phonological rules in the Eastern Kirinyaga dialects. The series *G, thus, divides Central Kenya Bantu into the following groups on phonetic grounds:

*G/_/a, ɛ, ɪ, ɔ, ʊ/	Kamba [Ø]	versus	all other varieties [ɣ]
*G/_/i/	Kamba [Ø] & Western [ɣ] (rule does not apply)	versus	all other varieties [g]
*G/_/u/	Tharaka & Miutini [g]	versus	all other varieties [ɣ] (rule does not apply)

*Table 42: Groups defined by correspondence series *G*

The comparison with Guthrie (1967-71) shows that the series *G/_/a, ɛ, ɪ, ɔ, ʊ/ relates to Common Bantu *g, as it is attested to by the following two examples:

(32)	036 foot	CB *-gùdù C.S. 884	>	*kʊ.gʊrʊ*	all of CKB escept for
			>	*kʊʊ*	Kamba
	109 guest	CB *-gènị̀ C.S. 805	>	*mʊ.gɛni*	all of CKB except for
			>	*mʊ.ɛni*	Kamba

The series *G/_/a, ɛ, ɪ, ɔ, ʊ/ is established by 31 items:

018 tooth (CB *-gègò C.S. 802)	209 garden /	451 stone (CB *-pígà C.S. 1548)
036 foot (CB *-gùdù C.S. 884)	265 field (CB *-gùndà C.S. 897)	532 yesterday (CB *-gòdò C.S. 842)
049 kidney (CB *-pígo C.S. 1549)	253 sharp	547 fatigue
055 to be tired	301 to kill (CB *-búd- C.S. 184)	555 noise
076 medicine	315 buffalo (CB *-bògó C.S. 157)	572 to bewitch (CB *-dòg- C.S. 644)
109 guest (CB *-gènị̀ C.S. 805)	317 giraffe (CB *-tùìgà p.s. 469)	582 good
148 to refuse /	345 to fly	588 wisdom
181 to deny /	363 to divide	598 sufficient
185 to forbid (CB *-dég- C.S. 521)	373 to buy	599 suitable
161 to quarrel	394 banana	
195 to get drunk	443 rock /	

*Table 43: Lexical attestations of series *G/_/a, ɛ, ɪ, ɔ, ʊ/*

The series *G/_/i/ and *G/_/u/ are established by four lexical items each:

*G/_/i/	*G/_/u/
133 adult (CB *-gị̀mà C.S. 830)	206 enclosure
207 fence	221 to cook (CB *-dʊ́g- C.S. 734)
275 load (CB *-dígò C.S. 614)	316 elephant (CB *-jògʊ̀ C.S. 951)
517 sorcerer	344 wing

*Table 44: Lexical attestations of series *G/_/i/*

*Table 45: Lexical attestations of series *G/_/u/*

Almost all of the items listed in tables 43-45 show highly widespread distribution indicating that the vast majority of lexemes has been inherited (cf. appendix A). The fact that in all three series subsumed as *G, 16 out of a total of 38 items (42%) show a regular connection to Common Bantu seems to corroborate the hypothesis that inheritance is the most important factor in this series.

All of the phonetic differences described in table 42 above are, consequently, due to linguistic divergence: In regard to *G/_/a, ɛ, ɪ, ɔ, ʊ/, all of Central Kenya Bantu shows the weakening of the Common Bantu segment *g. Kamba, it seems, has taken the process of weakening furthest by eliding the relevant segment.

The fact that two different phonological rules (subsumed as *G/_/i/ and *G/_/u/) apply in the dialects on the eastern slopes of Mount Kenya seems to be due to linguistic divergence: There

is no indication of lexical borrowing among the relevant lexical attestations (which would precondition a case of rule borrowing). In other words, it seems likely that the Eastern Kirinyaga dialects have developed the rule *G/_/i/ > [g] that is unattested in Western and Kamba. In turn, the Meru dialect of Miutini as well as the Tharaka language seem to have developed an additional rule *G/_/u/ > [g] not attested otherwise:

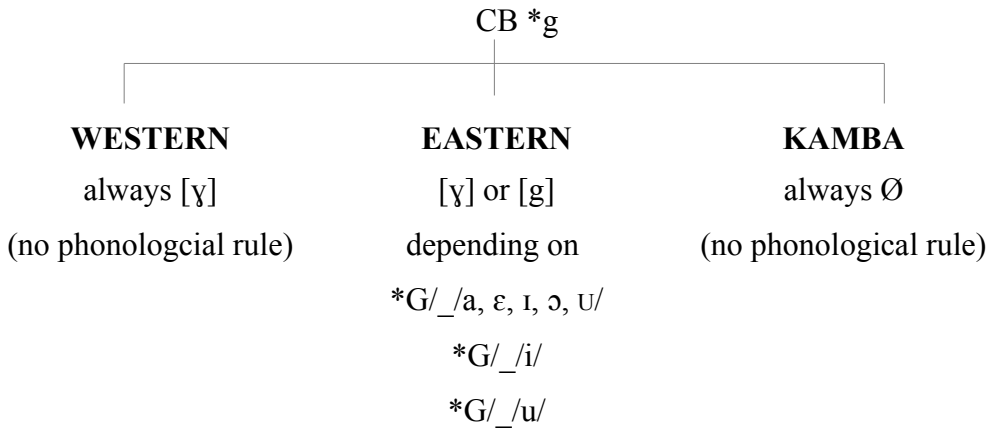


*Figure 13: Three-way split of CKB in series *G*

- *Correspondence Series *K_3 (Dahl's Law)*

Central Kenya Bantu is divided into two groups by the series *K_3 – Kamba versus all other varieties. The following table depicts this two-way split and shows the merger of *K_3 with the two series *G and *K_1:

Kamba [- Dahl's Law]	all remaining varieties [+ Dahl's Law]
[k] = *K_1	[ɣ] = *G/_/a, ɛ, ɪ, ɔ, ʊ/

*Table 45: Phonetic realization in correspondence series *K_3*

The series is established by the following 14 lexical items:

014 ear (CB *-kùtú 1243)	039 skin	356 to pull
021 shoulder (CB *-túúdì 1862)	179 to accuse (Sw. *-shtaki*)	456 path
022 arm (CB *-bókù 158)	244 mat (CB *-kéká 290)	476 crowd
024 elbow	246 basket (Sw. *kikapu*)	562 death (CB *-kṷà 1252)
(CB *-kókùdà 1130; Cushitic)	308 to fish (CB *-kúát- C.S. 1172)	585 dirt (CB *-kù 1093)

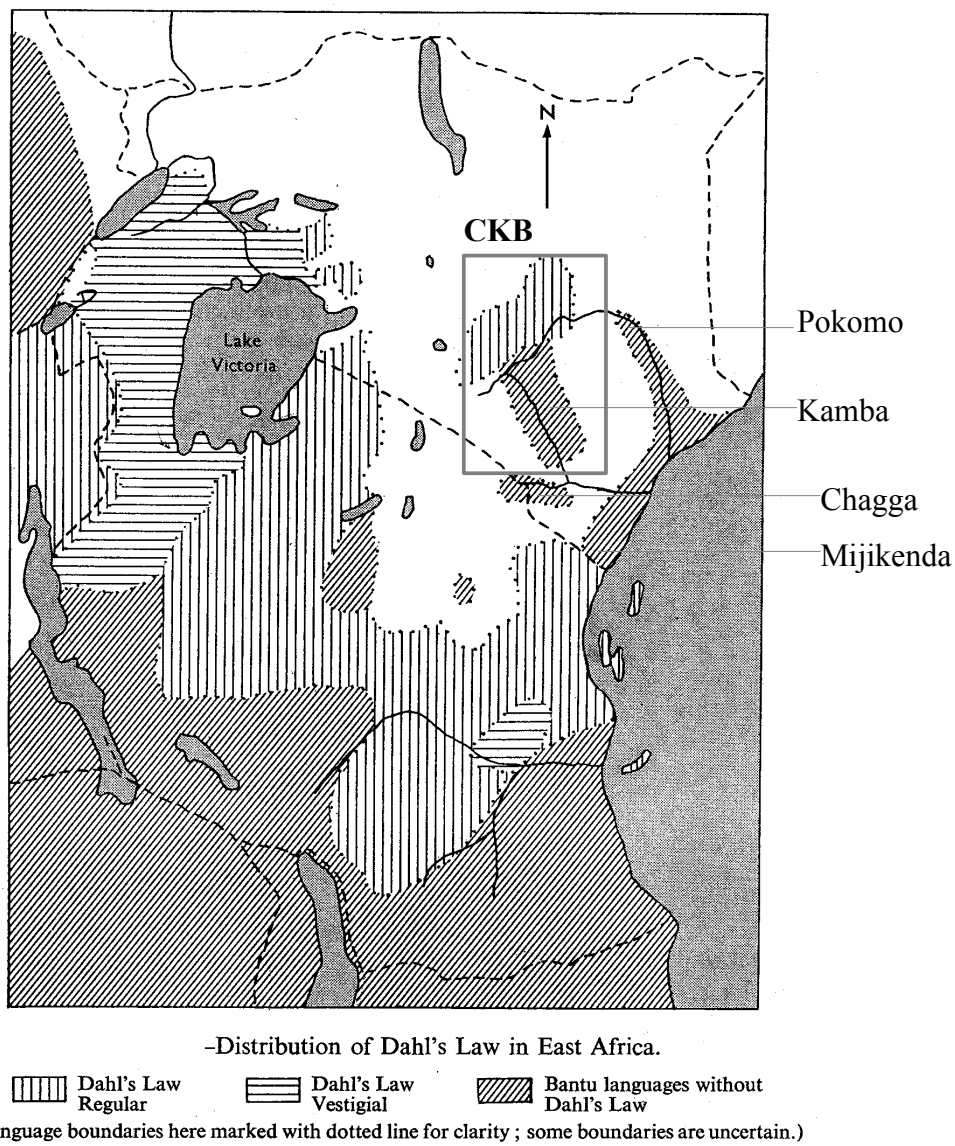
*Table 46: Lexical attestations of series *K_3*

The phonetic difference between [k] in Kamba and [ɣ] in the remaining varieties reflects the fact that Dahl's Law is active in all of Central Kenya Bantu except for Kamba. Dahl's Law is a dissimilatory process attested in a variety of East African Bantu languages that is described in most general terms as follows: If there are two syllables in a stem, both beginning with a voiceless plosive, the first one is voiced (Meinhof 1903: 299). In Central Kenya Bantu, this process is restricted, i.e. only /k/ is affected. Bennett (1967) provides a comprehensive overview of this particular type of phonological rule (based on different sets of data, e.g.

Lindblom 1914, Benson 1964). He deals with the distribution of Dahl's Law in East Bantu in general and in Central Kenya Bantu in particular. Moreover, he addresses the question whether this specific law has diffused throughout the affected languages or whether it is to be considered a shared innovation.

Bennett (1967: 133) shows that Dahl's Law varies considerably in both form and range of application: In Nyamwezi of Central Tanzania, for example, the first voiceless consonant in a series of two aspirates is voiced – whereas Gikuyu shows voicing of an unaspirated plosive. In Luhya, on the eastern shores of Lake Nyanza, the weakening process of Dahl's Law does not apply except within a morpheme. In Gikuyu, in contrast, class prefixes are affected as well (ibid.). In short, Dahl's Law may take various forms – nevertheless, Bennett (1967: 134) argues that it may be viewed as a single phenomenon despite the fact that Dahl's Law is far from uniform.

The law is only found in Eastern Bantu. However, within East Africa it occurs in languages that are often widely separated from one another. Nonetheless, Bennett (ibid.) conjectures that in comparison with the total area covered by the Bantu family, the restricted distribution of this phenomenon enables us to safely rule out chance as the reason behind the emergence of Dahl's Law. The question, then, is whether the rule is genetically inherited or contact-induced.



Map 6: Dahl's Law in East Africa (Bennett 1967: 129)

Bennett (1967) provides a number of arguments that point either way. On the one hand, he explains that in the region near Lake Nyanza, the application of Dahl's Law seems to be more rigid than further east: "Near Lake Victoria one finds forms of Dahl's Law which are regular and functional and come close to fitting the general statement of the 'law' made earlier [i.e. Meinhof's (1903) definition of Dahl's Law referred to above: voicing of the first plosive in a two-syllabic stem beginning with a voiceless plosive]; nearer the seacoast one finds vestigial forms, none at all, or ones which require a quite different type of statement" (Bennett 1967: 135). The conclusion to be drawn from this distributional description of Dahl's Law is, according to Bennett (ibid.), "a gradual spread toward the east, with a steady diminution of force."

On the other hand, the fact that one finds a relatively high degree of diversity in the application of Dahl's Law (subsumed as regular versus vestigial in map 6), according to Bennett (1967: 135) raises doubts about borrowing to be the only possible explanation in regard to the history of this rule in Eastern Bantu: "If Dahl's Law were the very recent introduction that it appears, one would expect rather less diversity than there in fact is" (ibid.).

For the Central Kenya Bantu languages, in turn, Bennett (1967) proposes that Dahl's Law is a fairly old phenomenon. In the genealogists' view, Bennett (1967: 156) suggests that it had started to occur before the relevant varieties split from the other languages of East Africa.

Investigating the relations between Central Kenya Bantu and its neighbors in regard to Dahl's Law from a dialectological point of view would precondition data adhering to the principle of spatial coherence for the languages outside the Kenyan Highlands (cf. section 2.1.6). From an internal perspective on Central Kenya Bantu, however, it is evident that Dahl's Law is an innovation shared by all varieties except for Kamba.

If Dahl's Law had, in contrast, diffused throughout the foothills of Mount Kenya, we could expect to find many lexical attestations that indicate internal borrowing. However, most of the items attesting to series *K_3 are regular and relate directly to Common Bantu:

(33)	014 ear	CB *-kùtú 1243	>	*gU.tU*	all of CKB except for
			>	*kU.tU*	Kamba
	021 shoulder	CB *-túúdì 1862	>	*gɪ.turɔ*	Meru, Igoji, Nithi, Chuka, Embu
			>	*kɪ.tuɔ*	Kamba
	022 arm	CB *-bókù 158	>	*gU.ɔkɔ*	Western
			>	*kU.ɔkɔ*	Kamba
	039 skin	*-kond-	>	*gɪ.kɔndɛ*	Eastern
			>	*kɪ.kɔndɛ*	Kamba
	244 mat	CB *-kéká 290	>	*mU.gɛka*	all of CKB except for
			>	*mU.kɛka*	Kamba
	308 to fish	CB *-kúát- C.S. 1172	>	*gwa:tia*	Meru
			>	*kwatia*	Kamba

476 crowd	*-kund-	>	*gɪ.kundi*	Meru, Igoji, Mwimbi (20), Chuka, Embu, Mbeere, Tharaka (40, 42b), Murang'a
		>	*kɪ.kundi*	Kamba
562 death	CB *-kṷà 1252	>	*gɪ.kuU*	all of CKB except for
		>	*gɪ.kuu*	Kamba
585 dirt	CB *-kù 1093	>	*gɪ.kɔ*	Western, Igoji, Nithi, Chuka, Embu, Mbeere
		>	*kɪ.kɔ*	Kamba

In none of the above cases in (33), attesting to the series *K_3, formal aberrance can be observed – thus, there is no formal indication of diffusion. From a distributional point of view, borrowing seems unlikely as well, as most of the items listed in (33) are relatively widespread.
There are some cases attesting to this series that show borrowed material. In these instances, however, it can be ruled out that the diffusion of these items correlated in any way with a possible diffusion of Dahl's Law throughout Central Kenya.

(34)	024 elbow	CB *-kókùdà C.S. 1130 Proto-Iraqwoid *gongooxi (Kießling and Mous 2003: 340) Proto-Southern-Cushitic *konkoolo (Ehret 1980: 245)			
			>	*kɪ.gɔkɔra*	Western
			>	*kɪ.kɔkɔa*	Kamba
	179 to accuse	Sw. *-shtaki*	>	*-ciga:ta*	Chuka (28), Embu, Mbeere, Tharaka
			>	*-sikata*	Kamba
	246 basket	Sw. *kikapu*	>	*gɪ.kabU*	Meru, Igoji, Nithi, Chuka
			>	*gɪ.ka:bU*	Embu, Mbeere, Tharaka
			>	*gɪ.kabu*	Western
			>	*kɪ.kabU*	Kamba

In the case of *elbow*, Guthrie (1967-71) provides the item CB *-kókùdà C.S. 1130. He may have failed to recognize the Cushitic origin of forms such as *kɪ.gɔkɔra* and *kɪ.kɔkɔa*. In the remaining two cases, Swahili is the donor of the relevant forms listed in (34). Since in Swahili Dahl's Law does not apply, we can rule out that the forms listed under *to accuse* and *basket* played a part in a putative introduction of Dahl's Law into Central Kenya Bantu. The loanwords listed in (34) were rather integrated into the respective sound systems by modifying the relevant forms according to Dahl's Law in those dialects in which it applies.
In sum, I argue that Dahl's Law has never diffused throughout the area around Mount Kenya. If that had been the case, we could expect to find attestations of lexical borrowing that facilitated the spread of this phonological rule. However, the majority of the relevant items represents genetic inheritance; the loanwords identified in this series have been integrated according to Dahl's Law in all varieties except for Kamba. The fact that the two series *K_3 and *G coincide in the entire group except for Kamba is the result of a phonemic merger, i.e internal language change. Kamba seems to be the most conservative variety in respect to *K_3, i.e. it has not developed the rule of weakening /k/ when followed by a voiceless plosive. In this regard, Kamba is more similar to the coastal Bantu languages than it is to the varieties in the foothills of Mount Kenya.

- *Correspondence Series *K_1*

The correspondence series *K_1 is non-diagnostic from a dialectometrical point of view, as it is synchronically represented by /k/ all throughout Central Kenya Bantu. Just as the series *K_3, it relates to Common Bantu *k. In this case, however, it refers to all segments relating to Common Bantu *k not followed by a voiceless stop. Therefore, Dahl's Law does not apply and this series does not merge with series *G (< Common Bantu *g). The following two items exemplify the relation between the consonant /k/ [- Dahl's Law] and Common Bantu *k:

(35)	214 charcoal	CB *-kádà CS 980	>	*ɪ.kara*	Eastern
			>	*ma.kara*	Western
			>	*ma.kaa*	Kamba
	490 nine	CB *-kèndá C.S. 1093	>	*kɛnda*	all of CKB

*c) Correspondence Series *P*

Two series are labeled *P: *P_1 and *P_2. The two series are identical in Ndia, Gichugu, Embu-Mbeere, and Kamba. Additionally, the series *P_1 coincides with *MP_1 and *MB_1 in all four Gikuyu dialects (Kiambu, Murang'a, Nyeri, Mathira) as well as in Gichugu. However, the two series *MP_1 and *MB_1 remain inconclusive regarding the historical affiliations in Central Kenya Bantu (see inconclusive cases below).

The following table shows all mergers to be observed in the context of the series labeled *P:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
Series	Kiambu	Muaŋa	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
*MP$_1$	ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	mb
*MB$_1$	ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
*P$_1$	ɦ	ɦ	ɦ	ɦ	β	β	v	v	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	ɦ	β	β	β
*P$_2$	β	β	β	β	β	β	v	v	β	β	β	β	β	β	β	β	β	β	β	β

*Table 47:Mergers of *P$_1$, *P$_2$, *MP$_1$, and *MB$_1$*

Table 47 shows that *P$_1$ merges *P$_2$ with in Ndia, Gichugu, Embu-Mbeere, and Kamba. The reason why it additionally merges with *MP$_1$ and *MB$_1$ is unclear – the two series are defined by too little lexical material, which prohibits us from deducting any claims in terms of the historical relations within Central Kenya Bantu regarding *MP$_1$ and *MB$_1$. Therefore, I only discuss the two cases of series *P in the following paragraphs:

- *Correspondence Series *P$_1$*

In phonetic terms, this series shows a synchronic three-way split of Central Kenya Bantu: Most dialects, i.e. all of Gikuyu and all varieties in the eastern foothills (from Chuka in the south to Meru in the north, including Tharaka) show the voiced glottal approximant /ɦ/. For all Kamba dialects as well as for Ndia and Gichugu (both Western), in contrast, the voiced bilabial approximant /β/ is attested, while Embu and Mbeere show the voiced dental fricative /v/. The following table 48 depicts this three-way split and indicates where *P$_1$ and *P$_2$ merge:

/v/ = *P$_2$	/β/ = *P$_2$	/ɦ/
Embu Mbeere	Ndia Gichugu Kamba	all remaining varieties

*Table 48: Phonetic realization in correspondence series *P$_1$*

The series is established by 55 lexical items:

027 palm of hand	075 to cure (CB *-pód- 1656)	128 twins (CB *-pácà 1407)
041 bone (CB *-píndí 1526)	086 to rest	146 to ask for
042 vein (CB *-kìpà 1087)	101 to jump	150 to give (CB*-pá- 1404)
046 lungs	111 marriage	152 gift
054 to sneeze	112 to marry	162 to slap
067 to vomit (CB *-tápik- 1684)	126 boy	163 to beat

171 to hide (CB *-pi̱c- 1546)	254 blunt (CB *-tu̱u̱p- 1880)	451 stone (CB *-pígà 1548)
174 lie	255 broom /	449 river
187 to punish	256 to sweep (CB *-pi̱agid- 1536)	458 place
202 to open	270 to plant (CB *-pànd- 1432)	464 branch
203 to shut	313 horn	513 boundary (CB *-pàká 1419)
211 to kindle /	366 to carve (Cush. *sup)	514 line
433 to blow (CB *-pu̱u̱p- 1632)	370 to paint	516 short (CB *-ku̱pí 1274)
213 to burn up	377 to pay (CB *-dìp- 589)	529 evening
217 to extinguish	385 satiated	581 light
220 cooking stones	417 to iron	596 coldness (CB *-pépò 1492)
(CB *-pígà-1548)	421 to plait (CB *-pìnd- 1542)	
227 to draw water (CB *-táp- 1681)	432 wind (CB *-pépò- 1492)	
238 to pound	437 lightning (CB *-pèni̱- 1482)	
252 knife	443 rock /	

*Table 48: Lexical attestations of series *P_1*

A total of 21 items relate to Common Bantu; the segments /v/, /β/, and /ɦ/ relate to Common Bantu *p, exemplified by the following two items:

(36)	067 to vomit	CB *-tápik- C.S. 1648	>	*-tavıka*	Embu, Mbeere
			>	*-taβıka*	Ndia, Gichugu, Kamba
			>	*-taɦıka*	all remaining varieties
	377 to pay	CB *-dìp- C.S. 589	>	*-riva*	Embu, Mbeere
			>	*-riɦa*	Ndia, Gichugu, Kamba
			>	*-iβa*	Kamba

The relatively large amount of Common Bantu cognates (38%) as well as the widespread distribution of most lexical items defining this series (see appendix A) suggest that inheritance is the most important factor in regard to *P_1. Next to the Common Bantu cognates, we also find a number of additional word forms that are regular in shape. However, they may not be connected to Common Bantu. Therefore, we need to assume that they originate from a stratum that is more recent than Common Bantu. The fact that most of the relevant items are widespread and show no formal aberrancies point to such a conclusion. The relevant items mostly denote body parts, social terms, basic actions and phenomena of the physical world. The prominent semantic classes that show Common Bantu items in this series relate to the human body, the physical world as well as – to a lesser extent – social and domestic concepts.

There is a number of cases for which we cannot rule out borrowing – based on distributional and formal consideration. The following example (37) suggests borrowing on formal and distributional grounds:

(37)	202 to open	CB *-bàŋgud- C.S. 59a	≠	*-vingʊra*	Embu, Mbeere
			≠	*-ɦingʊra*	Igoji (16a), Tharaka
					Gikuyu
			≠	*-βingʊra*	Gichugu
			≠	*-βingʊa*	Kamba
			≠	*-βingwa*	Kamba
			≠	*-βungwa*	Kamba

The forms listed in (37) are not regularly related to CB *-bàŋgud- C.S. 59a, as Common Bantu *b is usually reflected as /Ø/ in all of Central Kenya. All of the above forms are, therefore, considered aberrant. Nevertheless, the Embu-Mbeere form *-vingʊra* is regular to *-ɦingʊra* (Gikuyu) and *-βingʊa* (Kamba). The fact that Igoji and Tharaka show related forms that are isolated in terms of distribution (one location each) may, however, suggests that they were borrowed rather than inherited. The relatively high diversity in Kamba may also indicate borrowing. A possible source word for the Kamba form *-βungwa* is Swahili *-fungua* 'to open'. The marked distribution in the following two cases of (38) may also be understood as indication of horizontal language relations:

(38)	054 to sneeze	*-tiːɦa*	Igoji, Miutini, Mwimbi, Muthambi, Chuka	
		-tiːva	Embu	
	111 marriage	(*ʊ.gʊrani*	Meru, Embu, Mbeere, Tharaka)	Eastern
		ʊ.ɦiki	Mwimbi, Muthambi, Chuka	Eastern
		ʊ.viki	Embu	Eastern
		ʊ.vikania	Mbeere (39)	Eastern
		ʊ.ɦikania	Nyeri	Western
		kʊ.ɦiki	Kiambu	Western
		kɪ.ɦikɔ	Murang'a, Mathira	Western
		kʊ.ɦika	Ndia	Western
		kʊ.ɦikania	Gichugu	Western
	(112 to marry)	*-gʊrana*	Eastern	
		-ɦik(an)ia	Western	

The forms listed under *to sneeze* in example (38) above are restricted to two locations of Igoji, while they are widespread in Miutini, Mwimbi, Muthambi, and Chuka. Possibly, Igoji has borrowed this form from its neighbors.

In the case of *marriage* in (38), the borrowing process becomes transparent when comparing the relevant nouns with the corresponding verbs (*marriage* vs. *to marry*). In all eastern dialects, the verb *-gᵁrana* translates the verb *to marry*. Accordingly, we could expect these varieties to use a nominalization of this verb when denoting the concept of 'marriage'. Meru, Embu-Mbeere, and Tharaka use such a nominalization of *-gᵁrana*, namely *ᵁ.gᵁrani.*
In the western dialects, the verb *-ɦik(an)ia* denotes the concept of *to marry*, corresponding to the relevant nouns, such as *ᵁ.ɦikania.* It seems plausible that Embu and Mbeere, for example, have borrowed the words *ᵁ.viki* and *ᵁ.vikania* from their western neighbors. For this reason, Embu synchronically shows the word *ᵁ.viki* next to the genuine form *ᵁ.gᵁrani*. In short, the relevant words in (38) may indicate a montane spread of lexical forms from the west clockwise around Mount Kenya, possibly influenced by school education (cf. Möhlig 1974a: 126).
A case of uphill borrowing, i.e. from the plains of Kambaland to the slopes of Mount Kenya, is shown by the keyword *to ask for*:

(39)	146 to ask for	*-ɦɔːia*	Gikuyu: Nyeri, Kiambu
		-vɔːya	Embu, Mbeere
		-βɔːya	Kamba and Chuka (*-*ɦɔːya* expected in Chuka)

The two Gikuyu dialects of Nyeri and Kiambu show the form *-ɦɔːia,* partially divergent from the related form *-vɔːya* (Embu-Mbeere). In Chuka, we may expect to also find a form with stem-initial /ɦ/; however, stem-initial /β/ is attested – the Chuka form needs to be considered aberrant in shape and is most likely borrowed from Kamba.
Two additional cases attest to external borrowing from Swahili and Southern Cushitic, respectively *– 413 hat* and *366 carve*. In the case of *hat*, borrowing from Swahili is rather obvious. This item is expressed by *ngɔβia* in most of Kamba, while Gikuyu, for example, shows *ngɔɦia*. In general, the variation between Gikuyu /ɦ/ and Kamba /β/ is due to internal language change, i.e. CB *p > /ɦ/ in Gikuyu, CB *p > /β/ in Kamba. The item *hat* (*ngɔɦia, ngɔβia*) is, however, clearly borrowed from the Swahili word *kofia*, which is of Arabic origin. In this sense, the fact that Gikuyu shows the (inherited) glottal approximant /ɦ/ in this context is unusual. The variation of /ɦ/ versus /β/ may, however, be attributed to acoustic factors. Possibly, the word *ngɔβia* was first borrowed from Swahili into Kamba, from where it spread uphill into the languages of Mount Kenya. In acoustic terms, we may argue that the bilabial approximant /β/, phonetically described as [-stop, -fricative], may be mistaken by a Gikuyu speaker as the more familiar sound /ɦ/, especially when heard from a distance or through some acoustic distortion. In any case, the fact that this word is Arabic in origin, from where it spread into Swahili (Schadeberg 2009: 98), allows us to rule out that inheritance was at play in this particular case[9].
In the instance of *to carve,* diffusion seems to be the case as well. Most of Kamba shows the form *-acᵁβya;* in Murang'a and Gichugu *-asᵁɦia* and *-acᵁɦia* are attested. In Nyeri, two locations show *-icᵁɦia*. The fact that this form is widespread in Kamba and highly restricted otherwise suggests borrowing. Again, the variation between /ɦ/ and /β/ may be explained in acoustic terms. The possible source word for the above forms may be Southern Cushitic **sup* (Kießling and Mous 2003: 336).

9 The Swahili word *kofia* also appears under the meaning *162 to slap*. In this context, all dialects that have borrowed this item show a form with /β/, such as *nkɔːβi* or *ɪ.kɔːβi*. The relevant Common Bantu item *-kóópị̀ C.S. 1156 must be considered as poorly reliable in historical terms, as Guthrie failed to recognize the Arabic origin of the Swahili word *kofia*.

Based on formal and distributional considerations, a number of cases attesting to the series *P_1 indicate diffusion. However, the relatively large amount of regular widespread forms (of which 38 percent relate to Common Bantu) indicates that genetic inheritance is the most important factor in this series. In other words, the reason why Central Kenya Bantu can be connected as a whole on the basis of *P_1 is mainly due to common heritage. Consequently, the phonetic differences between /v/ (Embu-Mbeere), /β/ (Ndia, Gichugu, Kamba), and /ɦ/ (all remaining varieties) described by this series are due to divergence in regard to Common Bantu *p.

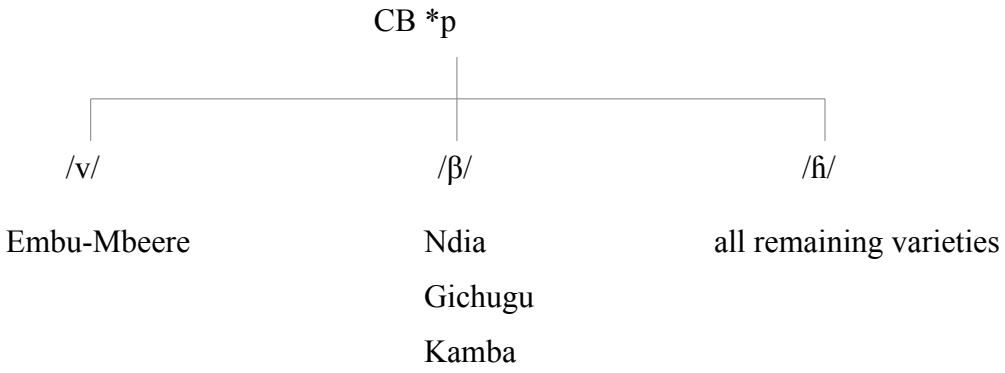


*Figure 14: Common Bantu *p in CKB*

- *Correspondence Series *P_2*

The series *P_2 divides Central Kenya Bantu into two groups. The following table provides an overview of this division:

/v/	/β/
Embu Mbeere	all remaining varieties

*Table 49: Phonetic realizations in series *P_2*

The comparison of *P_1 and *P_2 shows the overlapping of these two series in Ndia, Gichugu, Embu-Mbeere, and Kamba.

Embu-Mbeere /v/	= *P_1 and *P_2	(integration)
Ndia, Gichugu, Kamba /β/	= *P_1 and *P_2	(integration)
all remaining varieties /β/	= *P_2 only	(adaptation)

The series *P_2 is established by 20 lexical items:

023 arnpit (Sw. *kwapa*)	156 to teach (Sw. *-fundisha*)	343 feather
031 ribs	225 metal pot (Sw. *sufuria*)	345 to fly
032 chest	247 bottle (Sw. *chupa*)	355 to try
100 to swim	249 hammer	385 satiated
114 father	250 matchet (Sw. *panga*)	416 trousers

417 to iron (Sw. *-piga pasi*)	456 leaf	565 grave (Sw. *kaburi*)
457 road (Sw. *barabara*)	468 unripe	

*Table 50: Lexical attestations of series *P_2*

In none of the above cases in table 50, a regular connection to Common Bantu may be established. For the following three items in (40) there are corresponding forms constructed by Guthrie (1967-71); however, it is questionable that the synchronic forms were inherited rather than diffused into the relevant varieties. In the cases of *ribs*, *to fly*, and *unripe* in example (40), the majority of dialects show irregular shapes:

(40)	031 ribs	CB *-bàdụ̀ C.S. 30	>	(*w.au, U.wau*	Kamba)
			≠	*rU.baru*	Gikuyu
	345 to fly	CB *-bùduk- p.s. 43	≠	*-bu:rUka*	all of Eastern
					except for
			≠	*-burUrUka*	Chuka
			≠	*-bUrUka*	Embu (33a),
					Tharaka
	468 unripe	CB *-bícì C.S. 102	>	(*-ɪðɪ*	Kamba)
		Sw. *-bichi*	>	*-bɪðɪ*	all of Eastern

All forms showing /b/ in example (40) above are considered irregular, as Common Bantu *b usually relates to a lenis consonant in all of Central Kenya Bantu, e.g.:

(41)	556 to see	CB *-bón- C.S. 164	>	*-ɔna*	all of CKB
	563 corpse	CB *-bị̀mbà C.S. 145	>	*kɪ.imba*	all of CKB

In the case of *ribs* in (40), the Gikuyu form *rU.baru* seems to be borrowed. The same holds for the forms listed under *to fly*. The Kamba form *-ɪðɪ*, again, constitutes a regular form while all eastern dialects show *-bɪðɪ*, most probably borrowed from Swahili[10].
There are two additional cases in this series for which relevant Common Bantu items exist. It can, however, be ruled out that these are the origins of the forms in Central Kenya Bantu. It seems more likely that all relevant items listed under *armpit* and *bottle,* respectively, in (42) go back to Swahili:

10 Theoretically, the three items *ribs*, *to fly*, and *unripe* may be entered into a correspondence series of their own, e.g. *B. However, no such series has been established based on two reasons: First, the relevant items cannot connect Central Kenya Bantu as a whole – they occur in restricted distribution. Second, such a proposed series would be a simple duplication of the phonetic realizations described by the series *P_2.

(42) 023 armpit (CB *-kúàpà C.S. 1171)

Sw. *kwapa*	>	*nkua:*	Meru: Imenti, Nkubu, Miutini; Igoji
	>	*nkɔ:a*	Nithi: Mwimbi, Muthambi
	>	*nkuɔ:ba*	Chuka
	>	*nga:bua*	Embu, Mbeere
	>	*nkɔ:a:*	Tharaka
	>	*nzakwaba*	Kamba
	expected form: **nkuaɦa*		

247 bottle (CB *-cúpà C.S. 426)

Sw. *chupa*	>	*mU.cu:ba*	Meru: Imenti, Nkubu, Miutini; Igoji, Nithi: Mwimbi, Muthambi; Chuka, Embu
	>	*mU.cU:ba*	Embu, Mbeere
	>	*cUUba*	Tharaka
	>	*(kɪ.)sUba*	Kamba
	>	*cuba, suba*	Gikuyu, Ndia, Gichugu
	expected form: **-ðuɦa*		

The fact that in both of the above cases in (42) there exists such a large number of partially divergent forms indicates parallel borrowing. From a formal perspective, moreover, inheritance from Common Bantu can be ruled out, as all of the above forms show aberrant shapes. If the Common Bantu item *-kúàpà C.S. 1171 had been the actual source of the concept *armpit*, forms such as **nkuaɦa* could be expected to occur. The same holds for CB *-cúpà C.S. 426, which, according to the series $*C_3$ and $*P_1$, would be expected to yield a form such as **-ðuɦa*.

The above examples in (41) demonstrate that the the segment /β/ in Central Kenya Bantu does not relate to Common Bantu *b. In fact, if /β/ occurs outside Ndia, Gichugu, and Kamba we are safe to assume that we deal with a loan phoneme. This is represented by the fact that the two series $*P_1$ and $*P_2$ merge in these varieties (as well as in Embu-Mbeere). In other words, the fact that /β/ occurs outside Kamba reflects language contact.

On the one side, the loan phoneme /β/ outside Kamba seems to originate from the adaptation to Swahili labials, such as /f/, /b/, /p/. In Kamba, Ndia, Gichugu, and Embu-Mbeere (where the two series $*P_1$ and $*P_2$ merge), the segments /β/ and /v/, respectively, relate to Common Bantu *p. These varieties have been able to incorporate Swahili words showing labials by the use of these inherited segments /β/ and /v/, respectively. In short, Central Kenya Bantu may be divided into two groups in regard to the borrowing of Swahili words showing labials:

Incorporation /β/ and /v/ < CB *p $*P_1 = *P_2$	**Adaptation** /β/ $*P_1 \neq *P_2$
Ndia /β/ Gichugu /β/ Embu-Mbeere /v/ Kamba /β/	all remaining varieties

Table 51: Incorporation vs. adaptation in regard to Swahili labials

In sum, the series $*P_2$ seems to be characterized by horizontal language relations, i.e. mostly by borrowing of Swahili words. The fact that almost all dialects show the labial approximant /β/ (a genuine Kamba segment relating to CB *p) in this series suggests that Kamba has been the main facilitator in the spread of the relevant Swahili loanwords. In some cases, borrowing from unknown donor languages can be assumed as well. A comparison of the number of lexical attestations in the series $*P_1$ and $*P_2$ seems to support the claim that $*P_1$ is mainly characterized by genetic inheritance, while the correspondences described by $*P_2$ seem to be based on language contact:

Series Statistics:	$*P_1$	$*P_2$
	55 items (mostly widespread)	20 items (less widespread)
	21 CB cognates (38%)	2 CB cognates (10%)
	2 Swahili loans	8 Swahili loans
	Major factor: **Inheritance**	Major factor: **Contact**

Table 52: Attestations of $*P_1$ and compared $*P_2$

*d) Correspondence Series *MB and *MP*

The following complex of correspondence series to be discussed may be subsumed under the labels *MB and *MP. There is a set of five correspondence series that are characterized by the occurrence of pre-nasalized labials:

- $*MB_1$ (inconclusive)
- $*MB_2$/_/a, ɛ, ɪ, ɔ, ʊ/
- $*MB_2$/_/i, u/
- $*MP_1$ (inconclusive)
- $*MP_2$

These five series merge with each other and, additionally with the series $*P_1$, which was treated above under the correspondence series labeled *P. The following table shows the distributional patterns of the mergers regarding the series subsumed as *MB and *MP:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
Series	Kiambu	Muaŋa	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
*MB$_2$/_/i, u/	mb	mb	mb	mb	mb	mb	mv	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
*MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
*MP$_2$	mb	mb	mb	mb	mb	mb	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	mb
*MP$_1$	ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	mb
*MB$_1$	ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
*MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
*MP$_2$	mb	mb	mb	mb	mb	mb	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	mb

*Table 53: Mergers in the correspondence series *MB and *MP*

Table 53 shows a multitude of mergers between the series labeled as *MB and the ones subsumed under the label *MP. Excluding the two inconclusive cases of *MB$_1$ and *MP$_1$, the following mergers are to be considered: The two series *MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/ and *MB$_2$/_/i, u/ merge in all dialects except for Embu where the rule /mb/_/i, u/ > [mv] applies. The series *MP$_2$, in turn, merges with *MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/ in all of Central Kenya with the exception of the dialects from Muthambi northwards throughout Tharaka. In other words, some of the eastern dialects dispose of a voiced as well as a voiceless pre-nasalized labial stop.

- *Correspondence Series *MB$_2$*

This series is divided into *MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/ and *MB$_2$/_/i, u/ to acknowledge the fact that the segment /mb/ is realized as fricative [mv] in Embu when followed by the high vowels /i/ and /u/. In the context of the series *MB$_2$, only *MB$_2$/_/i, u/ is diagnostic from a synchronic perspective, i.e. it divides Central Kenya Bantu into two groups, while the series *MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/ is represented by /mb/ all throughout the group:

[mv]	[mb]
Embu	all remaining varieties

*Table 54: Phonetic realization in series *MB$_2$/_/i, u/*

The series *MB$_2$ relates to Common Bantu *mb as the following two cases exemplify:

(43)	052 to take a bath	CB *-càmb- C.S. 267	>	*(-ɪ.)ðamba*	all of CKB
	072 to swell	CB *-bi̱mb- C.S. 144	>	*-imba*	all of CKB

In addition, there is a large number of items showing /mb/ that are widespread but do not relate to Common Bantu. Nevertheless, they can be considered relatively old lexical items on formal and distributional grounds. Under the keyword *134 voice*, for example, the stem

-*gamb*- occurs, which is also attested under the meaning *175 lawsuit* and, presumably, relates to the concept of 'discussion'. The stem -*imb*- found under the meaning *188 dance* is another example of a widespread and regular form showing /mb/ not connected to Common Bantu.
Since there is no variation to observed in the series *MB_2/_/a, ɛ, ɪ, ɔ, U/, it is hardly possible to identify internal borrowing within Central Kenya Bantu. In other words, borrowing of words showing /mb/ is synchronically intransparent, as the segment /mb/ of any source word can simply be integrated into any dialect of Central Kenya. The same holds true for external loanwords, e.g. in the following two cases of external borrowing into Kamba:

(44)	267 to dig a hole	Sw. -*chi**mb**a*	>	-*si**mb**a*	Kamba
	474 number	Eng. *nu**mb**er*	>	*na**mb**a*	Kamba

The fact that the segment /mb/ relates to Common Bantu *mb indicates that it is an inherited phoneme in all of Central Kenya Bantu. The phonetic difference between Embu and the remaining varieties in regard to *MB_2/_/i, u/ can (cf. table 54), consequently, be attributed to linguistic divergence.

- *Correspondence Series *MP_2*

The series *MP_2 divides Central Kenya Bantu into two groups on phonetic grounds. The following table shows the two distinct realizations of *MP_2 and provides an overview of the merger between *MP_2 and *MB_2/_/a, ɛ, ɪ, ɔ, U/.

West-Embu-Mbeere-Chuka-Kamba	East
/mb/ = *MB_2/_/a, ɛ, ɪ, ɔ, U/	/mp/
Western: Gikuyu, Ndia, Gichugu; Embu; Mbeere; Chuka; Kamba	Nithi: Mwimbi, Muthambi; Igoji; Meru: Miutini, Nkubu, Imenti; Tharaka

*Table 55: Phonetic realizations in series *MP_2*

The series is established by the following five lexical items:

240 mortar	291 cat (CB *-pákà C.S. 1420)	406 maize (CB *-pémbá C.S. 1475)
285 donkey (Sw. *punda*)	381 hunger	

*Table 56: Lexical attestations of series *MP_2*

Only one of these items in table 56 above, *maize*, may connect the whole of Central Kenya Bantu. In other words, the evidence provided by the lexical items above is relatively thin – especially from a distributional point of view. The following table shows the distribution of the five attestations in this series:

*MP$_2$	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	mb	mb	mb	mb	mb	mb	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	m b
240 mortar										x	x									
285 donkey					x		x	x	x	x	x	x								
291 cat							x		x	x	x	x	x	x	x			x	x	x
381 hunger										x	x	x	x	x	x					
406 maize	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

*Table 57: Distribution of lexical items attesting to series *MP$_2$*

In the cases of *cat* and *maize*, a connection to Common Bantu can be established. However, this relation seems to be irregular. Möhlig (1974a: 165) remarks that the items occurring under the keyword *maize* seem to be borrowed:

(45)	406 maize	CB *-pémbá C.S. 1475	≠	*mpɛmpɛ*	Meru, Tharaka
			≠	*mbɛmbɛ*	Gikuyu, Ndia, Gichugu, Embu, Mbeere, Chuka, Kamba
			≠	*mpɛmpa*	Mwimbi, Muthambi
			?	*mbɛmba*	Kamba

In the case of *cat*, in turn, it seems likely that the relevant items were borrowed from Swahili, rather than inherited from Common Bantu. The items listed under the keyword *donkey* also seem to go back to Swahili:

(46)	291 cat	(CB *-páká C.S. 1420 – expected: **ɦaka*)				
		Sw.	*paka*	>	*mpaka*	Imenti, Miutini, Igoji, Mwimbi (20, 21), Muthambi, Tharaka
				>	*mbaka*	Chuka(27, 28), Embu (32a, 32b), Nyeri (100), Kamba
	285 donkey	Sw.	*punda*	>	*mpunda*	Igoji (15), Mwimbi (19a, 21), Muthambi (23, 24)
				>	*mbunda*	Chuka, Embu, Mbeere, Ndia

For the items under the keyword *cat* in (46), inheritance from Common Bantu can be ruled out. If inheritance were the case, at least some dialects would be expected to show a regular form such as **ɦaka*, which is unattested. Cats as well as donkeys seem to have been introduced to the Kenyan Highlands in relatively recent times. In the case of *donkey*, two forms are attested, all of which are borrowed from Swahili. On a side note, the concept of 'donkey' is also expressed by the loan *ntigiri* going back to Maasai *o-síkìrìà* (Tucker and Mpaayei 1955: 289), another indication that this concept is prone to borrowing in Central Kenya Bantu.
Even though the lexical evidence for the series *MP_2 is relatively thin, we may assume that the recurrent sound correspondences described by this series are due to language contact. The fact that the series *MP_2 merges with *MB_2/_/a, ɛ, ɪ, ɔ, ʊ/ in the western dialects, Embu-Mbeere, Chuka, and Kamba also seems to point to such a conclusion.

*e) Correspondence Series *R*

The series labeled as *R is divided into the following six sub-series:

- *R_1/_/a, ɛ, ɔ, ʊ/
- *R_1/_/u/
- *R_1/_/i/
- *R_1/_/ɪ/
- *|R_2+ i| (inconclusive)
- *R_3

The following table provides an overview of the distributional patterns in regard to the multiple collapse of correspondence series labeled as *R:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
Series	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
|*R_2+ i|	ɾi	ɾi	ɾi	ɾi	ɾi	ɾi	li	li	li	li	li	li	li	ʈi	ʈi	ʈi	ʈi	$ɛ^y$	$ɛ^y$	$ɛ^y$
*R_1/_/i/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	l	l	l	l	l	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R_1/_/ɪ/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R_1/_/a, ɛ, ɔ, ʊ/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R_1/_/u/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø

*Table 58: Mergers in correspondence series *R*

*R$_1$/_/ɪ/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R$_1$/_/i/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	l	l	l	l	l	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R$_1$/_/u/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R$_1$/_/a, ɛ, ɔ, U/	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*R$_3$	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	l

*Table 58: Mergers in correspondence series *R (continued)*

Table 58 presents a highly complex picture of the different mergers observable in regard to the correspondence series *R: The series |*R$_2$+ i| (discussed in more detail under inconclusive cases below) is a duplication of the series *R$_1$/_/i/ in all of Central Kenya Bantu except for Kamba. The remaining series labeled as *R$_1$ merge in all Western dialects as well as in Kamba. This represents the fact that no phonological rules based on the vocal environment apply in these varieties.
In the eastern dialects, in contrast, a set of different rules occurs rendering the mergers of *R$_1$/_/ɪ/, *R$_1$/_/i/, and *R$_1$/_/u/ rather complex in distributional terms (the vocal environment results in a variation between [ɽ] and [l]). The extent of multiple mergers in *R$_1$ is so large that it takes two tables to display all merges occurring under *R$_1$: The relation between *R$_1$/_/a, ɛ, ɔ, U/ and the remaining sub-series labeled as *R$_1$ are depicted in the upper part of table 58. The different mergers between *R$_1$/_/ɪ/, *R$_1$/_/i/, and *R$_1$/_/u/ are displayed in the mid-section of the table. Finally, an additional series *R$_3$ has been identified – except for Kamba, this series is identical to *R$_1$ and depicted at the bottom of table 58.

- *Correspondence Series *R$_1$*

The series *R$_1$ is divided into a total of four series to acknowledge the application of different phonological rules in the Eastern Kirinyaga dialects. The western dialects and Kamba do not obey to such rules. Thus, Central Kenya Bantu can be divided into the following groups on phonological grounds:

*R$_1$/_/a, ɛ, ɔ, U/	Kamba /Ø/	versus	all other varieties /r/
*R$_1$/_/i/	Kamba, Western, Meru, Tharaka (rule does not apply)	versus	all other varieties
*R$_1$/_/u/	Igoji & Miutini	versus	all other varieties (rule does not apply)
*R$_1$/_/ɪ/	Mwimbi & Muthambi	versus	all other varieties (rule does not apply)

*Table 59: Distribution of phonological rules in the context of series *R$_1$*

Phonetically, in turn, the four series labeled as *R$_1$ show a different set of divisions in Central Kenya Bantu: The *R$_1$/_/a, ɛ, ɔ, U/ series divides Central Kenya Bantu into three groups on phonetic grounds:

*R_1/_/a, ɛ, ɔ, ʊ/	Western [ɾ]	vs.	Eastern [ɽ]	vs.	Kamba [Ø]

*Table 60: Phonetic realizations in *R_1/_/a, ɛ, ɔ, ʊ/*

The remaining three sub-series of *R_1 yield a division into four groups each on phonetic grounds. In dialectological terms, this represents the lack of bundled isoglosses in this series:

[ɾ]	[l]	[ɽ]	[Ø]
Western	Embu-Mbeere Chuka Nithi	Nkubu Imenti Tharaka	Kamba

*Table 61: Phonetic realizations in *R_1/_/i/*

[ɾ]	[l]	[ɽ]	[Ø]
Western	Igoji Miutini	Embu-Mbeere Chuka Nithi Nkubu Imenti	Kamba

*Table 62: Phonetic realizations in *R_1/_/u/*

[ɾ]	[l]	[ɽ]	[Ø]
Western	Nithi	Embu-Mbeere Chuka Igoji Meru Tharaka	Kamba

*Table 63: Phonetic realizations in *R_1/_/ɪ/*

The series *R_1/_/a, ɛ, ɔ, ʊ/ is established by 44 items:

011 nose (CB *-yúdù 2151)	077 to give birth (CB *-bi̱àd- 136)	353 work
019 throat (CB *-mèdò 1295)	088 to stand	358 to put into
021 shoulder (CB *-tu̱u̱di̱ 1862)	096 to bring (CB *-déét- 546)	362 to tear
027 palm (of hand) (CB *-tádà 1640)	113 husband (CB *-dùmè 697)	373 to buy (CB *-yùd- 2149)
028 finger /	201 door (CB *-dàngò 552)	419 shoe
029 fingernail (CB *-yádá 1893)	214 charcoal (CB *-kádà 980)	428 shadow
036 foot (CB *-gùdù 884)	222 to fry (CB *-kádang 982)	435 rain /
044 intestines (CB *-dà 442)	224 to boil	436 to rain (CB *-bu̱dá 225)
045 heart (CB *-kódò 1115)	301 to kill (CB *-búd- 184)	459 village
057 to dream /	311 to bite (CB *-dúm- 696)	460 plant /
058 the dream (CB *-dóót- 672)	329 python	461 to sprout (CB *-mèd- 1293)
064 to fall ill (CB *-dúád- 677)	333 frog (CB *-yùdá 2150)	470 to be rotten (CB *-bòd- 153)
068 to cough (CB *-kóód- 1108)	336 soldier ant (CB *-cádàku̱ 251)	520 sign

528 morning	532 yesterday (CB *-gòdò 842)	572 to bewitch (CB *-dòg 644)
529 evening /	571 sorcerer	

*Table 64: Lexical attestations of series *R_1/_/a, ɛ, ɔ, ʊ/*

The series *R_1/_/i/ is established by 14 items:

004 hair (CB *-jụ́ídí 967)	207 fence	394 banana
017 tongue (CB *-dímè 571,	249 hammer	430 moon (CB *-yédị̀ 1965)
*-dímì 572x, *-dímị̀ 572y)	275 load(CB *-dí̩gò 614)	447 hole
032 chest	280 to herd (CB *-dí- 550)	450 lake (CB *-dị̀bà 603)
046 lungs	286 goat(CB *-búdị̀ 185)	463 root (CB *-dị̀ 591)

*Table 65: Lexical attestations of series *R_1/_/i/*

The series *R_1/_/u/ is established by 13 items:

031 ribs (CB *-bàdụ̀ 30)	446 cave	590 black (CB *-yídù 2037)
073 blister	469 to ripen	592 white (CB *-yédù 1966)
172 to curse /	548 smell	593 fat
173 to insult (CB *-dụ̀m- 740)	578 wide	
221 to cook (CB *-dụ́g- 734)	584 clean (CB *-céd- ps85)	

*Table 66: Lexical attestations of series *R_1/_/u/*

The series *R_1/_/ɪ/ is established by 14 items:

001 body (CB *-bìdì 112)	240 mortar	410 to wear
105 name	266 to cultivate (CB *-dìm- 568)	442 mountain (CB *-dìmà 569)
123 daughter	376 debt (CB *-dàndú C.S. 497)	565 grave (CB *-bíídà 111)
127 girl	377 to pay (CB *-dìp- 589)	594 sweetness
137 to cry (CB *-dìd- 561)	382 to eat (CB *-dí- 550)	

*Table 67: Lexical attestations of series *R_1/_/ɪ/*

The series subsumed as *R_1 are established by a total of 85 lexical items. 49 items, i.e. almost 60 percent, relate to Common Bantu. The synchronic segments occurring in this series are related to Common Bantu *d, as exemplified by the following two cases:

(47)	044 intestines	CB *-dà C.S. 442	>	*ma.ra*	all of CKB except for
			>	*maa*	Kamba
	214 charcoal	CB *-kádà CS 980	>	*-kara*	all of CKB except for
			>	*-kaa*	Kamba

All of the four parameters used in this study to distinguish genealogical from contact-based relationships suggest that the series *R_1 represents genetic inheritance:

- The relatively large amount of attesting items as well as a large amount of Common Bantu cognates.
- The majority of items show widespread distribution.
- The majority of items are regular; only few aberrant shapes suggest borrowing (*004 hair*, *017 tongue*, *077 to give birth*, *362 to tear*). In respect to the realization of *R_1, however, no irregularities can be observed in these items (the four items are deemed irregular based on segments other than /r/). Thus, due to the fact that all Central Kenya Bantu languages except for Kamba dispose of an inherited segment /r/. Any internally diffused word in the series *R_1 can be fully integrated into any language in Eastern and Western (regarding this segment). Any internal borrowing process would, therefore, be synchronically intransparent in regard to /r/.
- The semantic profile of the above attestations also points towards genetic inheritance, as a relatively large amount of core vocabulary (body parts, basic activities, motion, the physical world etc.) can be identified in this series.

In sum, the correspondences represented by the series *R_1 are based on common heritage in all of Central Kenya Bantu. Consequently, the phonetic differences described above (tables 60-63) are due to linguistic divergence: In general, all varieties seem to have weakened the Common Bantu segment *d rendering /r/ (Western, Eastern) and /Ø/ (Kamba), respectively.
The Western dialects and Kamba do not obey any phonological rules in this context, while the dialects on the eastern slopes of Mount Kenya have, in contrast, developed a set of different rules that influence the articulation of /r/ depending on the vocal environment. The mergers observed between the different sub-series labeled *R_1 are, consequently, more likely based on internal language change in the different eastern varieties rather than on rule-borrowing. The following diagram summarizes the three-way split of Central Kenya Bantu in regard to the reflection of Common Bantu *d:

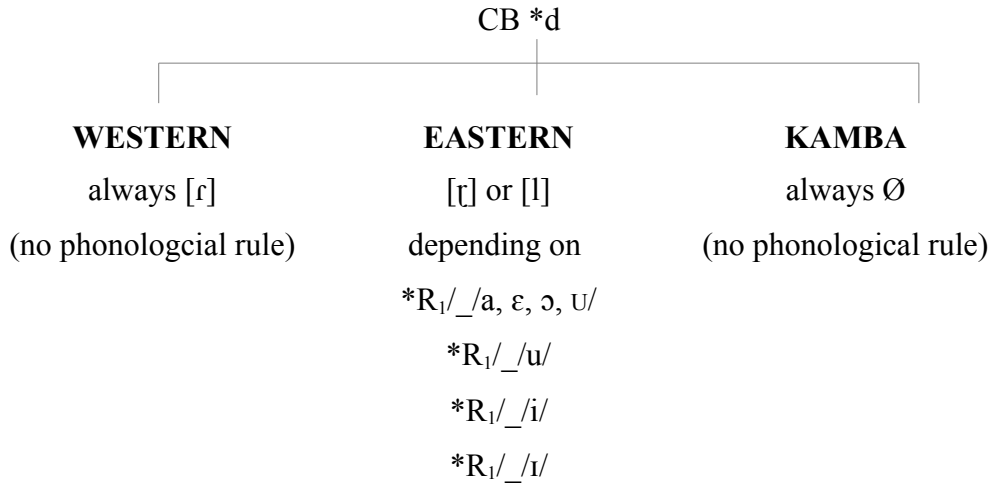


*Figure 15: Three-way split of CKB in series *R_1*

- *Correspondence Series *R_3*

The series *R_3 is identical to *R_1 in all of Central Kenya Bantu except for Kamba. The following table shows that *R_3 divides Central Kenya Bantu into three distinct groups on phonetic grounds:

[ɾ] = *R_1	[ɽ] = *R_1	[l]
Western	Eastern	Kamba

*Table 68: Phonetic realizations in correspondence series *R_3*

The series *R_3 is attested to by 38 items, of which 13 show a possible relation to the relevant Common Bantu forms. Some attestations in series *R_3 are relatively restricted in distribution (see appendix A). Besides, eleven items in this series are borrowed from Swahili, and one English loan occurs. In this regard, the series *R_3 differs from *R_1; the latter, as pointed out above, is almost entirely defined by widespread items, of which almost 60 percent show a regular relation to Common Bantu. The following lexical items, in turn, attest to the series *R_3:

003 brain (Sw. *akili*)	185 to forbid (CB *-dég- 521)	457 road (Sw. *barabara*)
016 lip (CB *-dòmò 651)	200 window (Sw. *dirisha*)	473 pumpkin (CB *-dèngè 543)
026 right hand (CB *-díó 555)	225 metal pot (Sw. *sufuria*)	481 to count (CB *-tád- 1639)
082 to remain (CB *-kàd- 974)	345 to fly (CB *-bùduk ps43)	483 two (CB *-bìdì 114)
090 to squat	364 to lift	512 weight (CB *-dịtò C.S. 940)
144 to ask	379 cheap (Sw. *rahisi*)	514 line (Eng. *line*)
148 to refuse (CB *-dég- 521)	380 expensive	520 sign (Sw. *aramu*)
149 to permit	383 food (CB *-dió 554)	550 to remember
154 to look	384 to swallow (CB *-méd- 1249)	551 to forget
155 to explain (Sw. *-eleza*)	386 to belch	552 to think
168 to chase	403 pepper	565 grave (Sw. *kaburi*)
179 to accuse	408 rice (Sw. *mchele*)	587 soft
181 to deny /	415 shorts (Sw. *suruali*)	

*Table 69: Lexical attestations of series *R_3*

The comparison with *R_1 shows that the series *R_3 is attested to by far less lexical items, which are, moreover, less widespread than it is the case in the series *R_1:

Series Statistics:	*R_1	*R_3
	85 items (mostly widespread)	38 items (less widespread)
	49 CB cognates (57%)	13 CB cognates (32%)
	no Swahili loans	11 Swahili loans

*Table 70: Attestations of *R_1 and compared *R_3*

Table 70 suggests that the series *R_1 mainly represents language relations that are based on genetic inheritance, while the smaller amount of (archaic) lexical items in *R_3 indicates language contact . In turn, the fact that the series *R_3 coincides with the series *R_1 in the western and eastern dialects – while the two series diverge in Kamba – points towards the following historical background: On the one hand, the western and eastern dialects seem to be connected through shared innovations in both cases *R_1 and *R_3 – in just a few instances, borrowing presents itself in these varieties. On the other hand, the series *R_3 seems to connect Kamba and the remaining varieties by horizontal language relation, i.e. language contact.
The majority of items attesting to *R_3 are regular in the western and eastern dialects. In two cases, however, loanwords can be identified in these varieties:

(48)	345 to fly	CB *-bùduk- p.s. 43	≠	*-buːrʊka*	Meru, Igoji, Nithi
			≠	*-burʊrʊka*	Chuka
			≠	*-bʊrʊka*	Embu (33a), Tharaka
			≠	*-gʊrʊka*	Embu, Mbeere
			≠	*-ʊlʊka*	Kamba
			≠	*-ʊmbʊka*	Western
	380 expensive	Maa. *a-gól*	>	*gɔrɔ*	all of CKB except for
			>	*-ʊlʊ*	Kamba

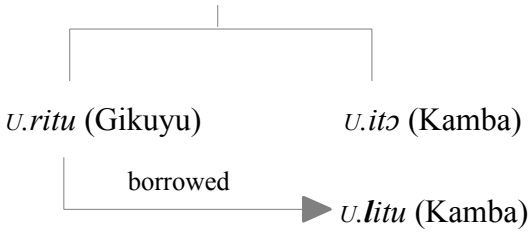
In the case of *to fly*, none of the above forms in (48) seems to be regularly related to Common Bantu, as the Common Bantu segment *b is usually realized as /Ø/ in all of Central Kenya Bantu. The relatively high diversity may also suggest borrowing. In the case of *expensive* the two forms listed in (48) are borrowed from Maasai *a-gól* 'to be strong' (Tucker & Mpaayei 1955: 249).
In all of the above instances of example (48), the judgment that borrowing is the case in Eastern and Western is based on considerations that do not involve the segment /r/. In the case of *to fly* it is the irregular occurrence of /b/, while the comparison with Maasai reveals the origin of the two form *gɔrɔ* 'expensive'. In other words, the segment /r/ is regular in the western and eastern dialects, and any loanword that shows this consonant can simply be integrated into the sound systems of these dialects. The occurrence of /r/ alone can, therefore, never be an indication of borrowing in the western and eastern dialects. Consequently, we have to acknowledge that some loanwords in the series *R_1 may remain synchronically intransparent in the western and eastern varieties.
The occurrence of /l/ in Kamba, in contrast, can be understood as a clear indication of language contact. The segment does not relate to Common Bantu *d in a regular manner. It rather seems to be a loan phoneme induced through language contact with the neighboring varieties uphill on the one hand and with Swahili on the other.
The following two examples show downhill borrowing from the dialects in the vicinity of Mount Kenya into the Kamba dialects in the lower parts of Central Kenya:

(49) 364 to lift *-kɪɪria* —borrowed→ *-ʊkɪlya, -ʊkɪlia, -ʊkʊlya*
Meru, Igoji, Nithi → Kamba

550 to remember *-ririkana* —borrowed→ *-lilikana*
most of Eastern and Western → Kamba

In the case of *weight* in (50) below, both regular and irregular shapes occur side by side in Kamba. Again, the reason seems to be downhill borrowing into Kamba from its neighbors on the slopes of Mount Kenya: Although Kamba had disposed of a regular item, it additionally borrowed the relevant item from its neighbors – possibly, due to the higher prestige of some of these languages during a certain period in time (or by speakers shifting to Kamba):

(50) 512 weight CB *-dɪ̀tò C.S. 940



The above case in (50) represents a case of adaptation: In the attempt to come as close as possible to the original pronunciation of the Gikuyu form *ʊ.ritu,* Kamba speakers substitute Gikuyu /r/ with /l/ (as they do not dispose of /r/). The same process can also be observed in loanwords from Swahili. In Gikuyu, the relevant item is integrated (inherited segments are used), while Kamba shows adaptation:

(51) 379 cheap Sw. *rahisi* → ***l**aisi* Kamba (adaptation)
***r**aiði* Gikuyu (integration)

In sum, the series *R represents the following linguistic affiliations: The series *R_1 (< CB *d) represents genealogical relations. Most segments showing /r/ in Eastern and Western are shared innovations. Only for a few cases diffusion must be considered in series *R_1. Consequently, the phonetic difference between [ɾ] (Western) and [ɽ] (Eastern) is due to divergence. The same holds for the difference between Kamba /Ø/ and /r/ in the remaining varieties. In short, the major factor in *R_1 is inheritance.
In contrast, the fact that Kamba recurrently corresponds to the remaining varieties in the series *R_3 (Kamba /l/ = /r/ in the remaining varieties) is based on convergence: On the one hand, it is due to downhill borrowing from the varieties on the slopes of Mount Kenya into Kamba. On the other hand, this instance of linguistic convergence is the result of mutual borrowing from Swahili.

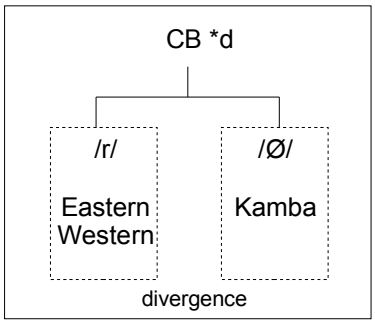


*Figure 16: Divergence between Kamba and East-West (*R$_1$)*

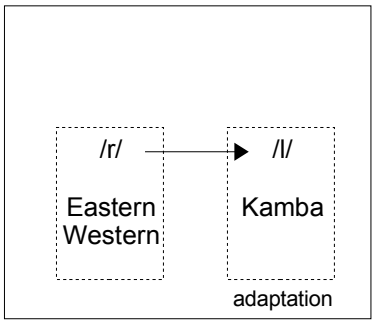


*Figure 17:Internal diffusion into Kamba from uphill (*R$_3$)*

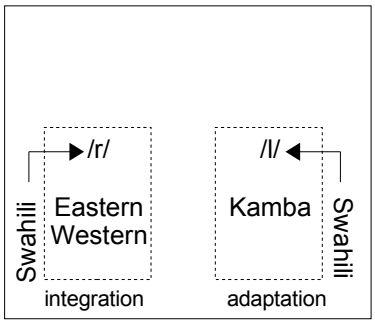


*Figure 18:External diffusion into CKB from Swahili (*R$_3$)*

(4) Inconclusive Cases

*a) Correspondence Series *J*

The series subsumed under the label *J comprises the series *J$_1$, |*J$_2$ + i|, and *J$_3$. Both *J$_1$ and |*J$_2$ + i| show partial overlapping with series *C$_1$, which is discussed above under Correspondence Series *C. The series |*J$_2$ + i| is only defined by two lexical items and, therefore, remains largely inconclusive. In the context of series *J, the following mergers are to be observed:

	Western						Embu-Mbeere			Nithi			Meru			Tharaka		Kamba		
Series	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
*J$_3$	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
*J$_1$	y	y	y	y	y	y	ʃ	ʃ	ʃ	ʤ	ʤ	ʒ	ʐ	ʒ	ʒ	ʧ	ʃ	ʂ	ʂ	ʂ
|*J$_2$ + i|	ʧi	si	ʧi	si	si	ʧi	ʃi	ʃi	ʃi	ʤi	ʤi	ʒi	ʐi	ʒi	ʒi	ʧi	ʃi	ɛʸ	ɛʸ	ɛʸ
*C$_1$/_/i, u/	ʧ	s	ʧ	ʧ	s	s	tʂ	tʂ	ʧ	ʧ	ʔʂ	ʔʂ	ʔʂ	ʃ	ʤ	ʧ	ʃ	ʂ	ʂ	ʂ
*J$_1$	y	y	y	y	y	y	ʃ	ʃ	ʃ	ʤ	ʤ	ʒ	ʐ	ʒ	ʒ	ʧ	ʃ	ʂ	ʂ	ʂ
*C$_1$/_/a, ɛ, ɪ, ɔ, ʊ/	ʧ	s	ʧ	ʧ	s	s	ʃ	ʃ	ʃ	ʧ	ʔʂ	ʔʂ	ʔʂ	ʃ	ʤ	ʧ	ʃ	ʂ	ʂ	ʂ

*Table 71: Mergers involving correspondence series *J*

Table 71 shows a complex picture of the distribution of mergers involving the different series subsumed as *J: The series *J$_3$ merges with *J$_1$ in all western dialects. The latter, in turn, merges with |*J$_2$ + i| in all remaining varieties except for Kamba. Moreover, the series *J$_1$ merges with *C$_1$/_/a, ɛ, ɪ, ɔ, ʊ/ in Embu-Mbeere, Chuka, Tharaka, and Kamba (as depicted in the lower part of the table for technical reasons). |*J$_2$ + i|, again, merges with *C$_1$/_/i, u/ in Western and Tharaka. The complex relation between all dialects of Central Kenya in regard to the series *J is discussed in detail in the following paragraphs:

- *Correspondence Series* *J_3

In comparison with all other series treated in table 71, the series *J_3 is the least complex series in terms of both phonetic variation and the distribution of its merger with other series. In phonetic terms, the series shows no variation (/y/ all throughout Central Kenya Bantu) and is, therefore, considered non-diagnostic in dialectological terms. The series is established by the following six lexical items in table 72 below. The segment /y/ is, in addition, infrequently observed in isolated lexical items (which may not connect more than a few locations, i.e. the may not establish inter-dialectal correspondence):

051 sweat	169 to steal (CB *-yíb- C.S. 2020)	326 fish
146 to ask for	312 fur (CB *-yòyá C.S. 2141)	531 tomorrow

*Table 72: Lexical attestations of series *J_3*

The relatively low amount of attestations renders the qualitative assessment of this series rather difficult. Only two items show a connection to Common Bantu:

(52)	169 to steal	CB *-yíb- C.S. 2020	>	*-iːya*	all of Eastern except for
			>	*-ɪːya*	Embu-Mbeere
			>	*-ya*	Kamba
			>	*-iya*	Kamba, Western
	312 fur	CB *-yòyà C.S. 2141	>	*gwɔya*	Chuka, Embu, Mbeere
			>	*gwaːya*	Tharaka
			>	*gUːɔya*	Gikuyu, Gichugu
			>	*ma.gUɔya*	Gikuyu
			>	*gwɪa*	Kamba

The two examples in (52) seem to suggest that /y/ in all of Central Kenya Bantu relates to Common Bantu *y. However, this is not the case: Common Bantu *y usually relates to a lenis consonant in all of Central Kenya, which is attested by a large number of lexical items. The following two examples may suffice to illustrate this elision of Common Bantu *y in Central Kenya Bantu:

(53)	350 to begin	CB *-yàmb- C.S. 1914	>	*-ambɪrɪria*	Eastern, Western
			>	*-ambɪɪa*	Kamba
	430 moon	CB *-yédị̀ C.S. 1964	>	*mUːɛːri*	all of CKB except for
			>	*mwːɛːri*	Western
			>	*mwːɛi*	Kamba

The fact that the segment /y/ does not usually relate to Common Bantu *y as well its infrequent occurrence suggest that borrowing may be involved when it comes to the occurrence of /y/ in Central Kenya Bantu. Due to the low amount of attestations, however, this series remains inconclusive.

- *Correspondence Series *J$_1$*

The series *J$_1$ overlaps with the two series *J$_3$ and *C$_1$. In regard to *J$_1$, Central Kenya Bantu can be divided into seven distinct groups, each showing a different realization of *J$_1$. The following table shows this distinction and, furthermore, makes reference to the series that are parallel to series *J$_1$:

[y] = *J$_3$	[ʃ] = *C$_1$	[dʒ]	[ʒ]	[z̪]	[tʃ] =*C$_1$	[s̪] =*C$_1$
Gikuyu Ndia Gichugu	Embu Mbeere Chuka W-Tharaka	Mwimbi Muthambi	Igoji Nkubu Imenti	Miutini	E-Tharaka	Kamba

*Table 73: Phonetic realizations in correspondence series *J$_1$*

The fact that series overlap may be a general indicator of horizontal language relations. The relatively restricted distribution of the relevant attestations listed for this series in appendix A also seems to point towards diffusion. The series is defined by ten lexical items:

084 to come (CB *-yìj- C.S. 2045)	232 fill	364 to lift
097 to take	274 to pick up	366 carve
126 boy	313 horn	400 cassava

*Table 74: Lexical attestations of series *J$_1$*

Only one corresponding Common Bantu form can be identified; however, it seems to be irregularly connected to Central Kenya Bantu:

(54) 084 to come CB *-yìj- C.S. 2045 ? *-ɪ:ja* Mwimbi, Igoji, Miutini, Nkubu
? *-uja* Chuka, Tharaka

The two forms in example (54) are only attested in a minority of dialects, which may be a secondary indication of diffusion. The remaining varieties show unrelated forms. For the lack of confirming evidence, it remains unclear whether *-ɪ:ja* and *-uja* are directly related to Common Bantu.
The mergers indicated in table 73 above suggest borrowing of the relevant items. In the western dialects of Gikuyu, Ndia, and Gichugu, the relevant words show /y/. The origin of this segment (induced vertically or horizontally) cannot be determined due to the low amount of attestations in series *J$_3$ (see above). It is unlikely, however, that it relates to Common Bantu *y. In Embu, Mbeere, Chuka, Tharaka, and Kamba, the series *J$_1$ merges with series *C$_1$, which, in turn, seems to be characterized by horizontal language relations, as I argued above (see example 26 and tables 35-37). The remaining dialects show phonetic realizations

that are not attested in any other series, i.e. in these varieties no mergers can be identified for this series.
In general, all of the observations described here may point towards horizontal language relations: All the attestations of this series are rather limited in distribution and, besides, unrelated or irregularly connected with Common Bantu. In addition, they comprise so-called multivalent forms, which generally suggests multiregional origins. However, this hypothesis cannot be confirmed due to the low amount of attestations.

- *Correspondence Series |*J_2 + i|*

This series is considered non-diagnostic in historical terms as it is only attested to by two items *– 077 to give birth* and *356 to* pull. On phonetic grounds, Central Kenya Bantu is divided into seven distinct groups in this series:

Western		Eastern				Kamba
[tʃi] = *C_1/_/i, u/	[si] = *C_1/_/i, u/	[ʃi] = *J_1	[dʒi] = *J_1	[ʒi] = *J_1	[zi̱] = *J_1	[ɕʸ] = |*R_2 + i|
Kiambu Nyeri Gichugu	Murang'a Mathira Ndia	Embu Mbeere Chuka W-Tharaka	Mwimbi Muthambi	Igoji Nkubu Imenti	Miutini	Kamba

Table 75: Phonetic realizations in correspondence series |J_2 + i|*

Table 75 shows that the series |*J_2 + i| coincides with a multitude of other series. In the western dialects, this series is a duplication of the series *C_1/_/i, u/. In the eastern dialects, the two series |*J_2 + i| and *J_1 are identical, while Kamba shows the segment [ɕʸ] (written as /sy/), a voiceless alveo-postpalatal fricative also occurring in the series |*R_2 + i|.
Insofar, the two items establishing the series |*J_2 + i| are truly multivalent in Guthrie's (1967-71) terms: If it were not for the aberrancies in Kamba and the western dialects, the entire series could be subsumed under the series *J_1. In general, the multiplicity of overlapping series may indicate horizontal language relations. This hypothesis can, however, not be confirmed for the lack of corroborating lexical data:

(55)	077 to give birth	CB *-bi̱ád- C.S. 136	≠	*-jia:ra*	Eastern Kirinyaga
			≠	*-cia:ra*	Kiambu, Nyeri, Mathira
			≠	*-sia:ra*	Murang'a, Ndia, Gichugu
			≠	*-syaa*	Kamba

359 to pull	*-ku:jia*	Eastern Kirinyaga
	-gu:jia	Chuka, Embu, Mbeere
	-gu:cia	Kiambu, Nyeri, Gichugu
	-gu:sia	Murang'a, Mathira
	-kusya	Kamba

In the case of *to give birth* in (55) above, Möhlig (1974a: 122) suggests borrowing to be the cause of the relatively high diversity. From judging by the relevant Common Bantu form, the connection between Common Bantu and Central Kenya Bantu is irregular. The origin of the forms listed under *to pull* in (55) remains unclear. Consequently, this series is considered to be inconclusive.

*b) Correspondence Series *K_2*

The series *K_2 is only defined by three items, two of which go back to the same Common Bantu root. In general, such a low amount of evidence prohibits us from drawing explicit historical conclusions. In this case, however, borrowing seems unlikely.
This series is set up in the quantitative dialectology in order to recognize the fact that Tharaka disagrees with the remaining varieties in regard to the following three items:

(56)	525 day	CB *-tʊ́kù C.S. 1863	>	*ntuk^{U}*	Meru, Igoji, Nithi, Chuka
			>	*ɪ.tuk^{U}*	Kamba
			>	*ntugu*	Tharaka
	527 night	CB *-tʊ́kù C.S. 1864	>	*^{U}.tuk^{U}*	all of CKB except for
			>	*^{U}.tugu*	Tharaka
	579 narrow			*-cɛkɛ*	all of CKB except for
				-ðɛkɛ	Kamba
				-cɛgɛ	Tharaka

The former two meanings in (56) originate from CB *-tʊ́kù C.S. 1863 and C.S. 1864 and are realized as the stem *-tuk^{U}* in most dialects. In Tharaka, in contrast, the stem *-tugu* attests to the weakening of the Common Bantu segment *k in these two instances. From a dialectological perspective, these cases cut through the lines of recurrent sound correspondences series: While weakening is attested in Tharaka (typical of all dialects in the series *K_3), the remaining varieties show the unmodified retention of Common Bantu *k (typical of all dialects in the series *K_1). Consequently, the three items *day*, *night*, and *narrow* can neither be entered into the series *K_1 (for the deviance of Tharaka) nor into the series *K_3 (for the deviance of all remaining varieties).

Since in this study, only three items in Tharaka cut through the lines of the two series *K_1 and *K_3, there is not enough evidence to make strong claims in this respect – especially since two items relate to identical Common Bantu forms. It is evident, however, that only Tharaka is affected by the weakening described in regard to *K_2. Furthermore, the relevant items showing a velar fricative are attested for every location in Tharaka. The widespread distribution renders language contact a rather implausible explanation in this case. Only in the case of *narrow* borrowing needs to be considered a possibility, as all varieties except for Kamba show the aberrant segment /c/. However, the lack of sufficient data prohibits any further historical claims. The weakening of Common Bantu *k in (56) shown by Tharaka may also be attributed to chance.

*c) Correspondence Series *MB_1*

Again, this series provides little diagnostic value in historical terms as it is only established by two items: *319 hyena* and *362 to tear*. From a formal perspective, this series overlaps with the two vertical series *P_1 (in Gikuyu and Gichugu where /ɦ/ is attested) and *MB_2 (all remaining varieties where /mb/ is attested). Central Kenya Bantu is, consequently, split in two by this series.

/ɦ/ = *P_1	/mb/ = *MB_2
Gikuyu Gichugu	all remaining varieties

*Table 76: Phonetic realizations in series *MB_1*

The item *hyena* shows aberrant forms in most varieties:

(57)	319 hyena	CB *-píṭị̀ C.S. 1652	>	*ɦiti*	Western
			≠	*mbiti*	Meru, Igoji, Mwimbi
			≠	*mbiti ɲau*	all remaining varieties

The fact that this series connects regular and irregular forms in all of Central Kenya Bantu through recurrent sound correspondence seems to point towards convergence. In other words, the occurrence of the form *ɦiti* in Gikuyu and Gichugu can be explained by a regular relation to Common Bantu. The other two forms in (57) show skewed shapes and, possibly, indicate a different kind of transmission into Central Kenya Bantu, i.e. via language contact. The second attestation of this series, the item *to tear* in (58) below, can not be connected to Common Bantu. However, it attests to the same opposition between /ɦ/ and /mb/ – in this case in stem-internal position:

(58)	362 to tear	*-tambʊra* (e.g. Nkubu)	versus	*-taɦʊra* (e.g. Kiambu)
		-tɛmbʊra (e.g. Tharaka)	versus	*-tɛɦʊra* (e.g. Nyeri)

Next to the four forms listed in (58), the items *-tarʊra* and *-tɛrʊr a* are attested in Gikuyu under the meaning *to tear* This high amount of (partial) divergence, yet again, points towards language contact. Consequently, this series may be considered to represent horizontal

language relations. However, the lack of sufficient data prohibits us from confirming such a hypothesis.

*d) Correspondence Series *MP$_1$*

Due to the fact that this series is only defined by the two items *kidney* and *coldness* it is also considered inconclusive for the lack of sufficient data. The series *MP$_1$ merges with three other series: *P$_1$, *MB$_1$, and *MP$_2$. Central Kenya Bantu is divided into three groups:

/ɦ/ = *P$_1$ and *MB$_1$	/mp/ = *MP$_2$	/mb/ = *MB$_1$ and *MP$_2$
Gikuyu Gichugu	Mwimbi Muthambi Igoji Miutini Nkubu Imenti Tharaka	Ndia Embu Mbeere Chuka Kamba

*Table 77: Phonetic realizations in correspondence series *MP$_1$*

Table 77 shows that the series *MP$_1$ merges with a total of three different correspondence series: In the western dialects of Gikuyu and Gichugu, it agrees with *P$_1$ and *MB$_1$ in the use of /ɦ/. In most of the eastern dialects, the series coincides with *MP$_2$, while in Ndia, Embu-Mbeere, Chuka, and Kamba, the three series *MP$_1$, *MB$_1$, and *MP$_2$ collapse into one.
The difference between initial /ɦ/ in Gikuyu and Gichugu versus the prenasalized stops in the remaining varieties may be due morpho-phonological reasons. In Gikuyu and Gichugu, the two items CB *-pígó C.S. 1549 (*kidney*) and CB *-pépò C.S. 1492 (*coldness*) are reflected as *ɦigɔ* and *ɦɛɦɔ,* respectively. These two forms seem to represent a sound shift CB *p > /ɦ/, as it is attested by the series *P$_1$. The other dialects are all characterized by a labial realization of CB *p, such as in *mpɛβɔ*; they show pre-nasalization in class 9.
In Guthrie's (1967-71) terms, the two attestations of this series are multivalent: If it were not for the forms *ɦigɔ* and *ɦɛɦɔ*, the two items would fit into series such as *MB$_1$ or *MP$_2$. The fact that these series overlap may suggest convergence. In historical terms, one may argue that the forms in Gikuyu and Gichugu have been transmitted directly from Common Bantu, while the remaining items seem to have been transmitted into Central Kenya Bantu in a different way. This is not only indicated by the fact that the reflection of stem-initial CB *p is characterized by a pre-nasalization in all varieties with the exception of Gikuyu and Ndia. The reflection of the stem-internal segment *p in CB *-pépò C.S. 1492 as /β/ in these dialects also constitutes a formal aberrance:

(59)	596 coldness CB *-pépò C.S. 1492	>	*ɦɛɦɔ*	e.g. Gikuyu
		≠	*mpɛβɔ*	e.g. Tharaka
		≠	*mbɛβɔ*	e.g. Kamba

Except for the Gikuyu form in example (59) above, all forms show aberrancies in regard to two features, i.e. at the beginning and in the middle of the stem. Guthrie (Vol. 2: 30) calls such items "extraneous", and suggests horizontal relations to be the reason for the emergence

of such deviant forms. This may be the case here; the low amount of attestations, however, prohibits a further qualitative diagnosis of this series.

*e) Correspondence Series *NC₂*

The low amount of lexical data in this series poses, yet again, a challenge to the historical diagnosis of the series *NC₂. The relevant list of attestations in appendix A comprises only four items. The forms under the keywords *alone* and *mercy* show relatively restricted distribution, while the other two items are widespread.

440 land (CB *-cí C.S. 330)
479 alone (CB *-yóncè C.S. 2123)
537 mercy
542 shame (CB *-cónị̀ C.S.)

*Table 78: Lexical attestations of series *NC₂*

Formally, this series is determined by the presence versus absence of prenasalization of the dental fricative /ð/. In the western dialects of Gikuyu, Ndia, and Gichugu, the feature [-prenasal] is attested, while all remaining dialects show [+prenasal]. The series merges with *C_3 in the western dialects:

/ð/ = *C_3	/nð/
Western: Gikuyu Ndia Gichugu	all remaining varieties

*Table 79: Phonetic realizations in correspondence series *NC₂*

In phonetic terms, this opposition between prenasalized segments and their non-nasal counterparts is unmarked. In natural phonology, prenasalization of voiced segments is considered a natural process, that helps easing the difficulty of articulating voiced sounds (Stampe 1973: 1). In the context of Central Kenya Bantu, the opposition between prenasalized and non-nasal segments is unmarked and seems, to some extent, depend on an individual's idiolect. Anyone traveling through the Kenyan Highlands may be able to attest to this, even in the English variety spoken by the local population. The English word *lamp*, for example, is sometimes heard as [la^{m}b], i.e. the nasal in the middle of the word is only slightly articulated. Nevertheless, in respect to the four lexical items listed above, the language data used in this study attests to a general division between the western dialects and the remaining varieties in regard to prenasalization in *NC₂.
In the following two items, this distinction seems to be due to morpho-phonological reasons. In all of Central Kenya Bantu, class 9 is normally constructed by a nasal preceding the stem. Gikuyu, Ndia, and Gichugu pose an exception this rule in the case of *land* and *shame*:

(60)	440 land	CB *-cí C.S. 330	>	*nðɪ*	all of CKB except for
			>	*ðɪ*	Kiambu and Ndia
			>	*ɔðɪ*	Nyeri

542 shame	CB *-cónị̀ C.S.	>	*nðɔni*	all of CKB except for
		>	*ðɔni*	Gikuyu, Ndia, Gichugu, parts of Kamba
		≠	*nzɔni*	in parts of Kamba

The items listed under the keyword *land* in (60) seem regularly related to Common Bantu (cf. correspondence series *C_3 that attests to CB *c > /ð/ in all of CKB). The same holds for the case of *shame*. In this instance, however, the irregular form *nzɔni* is attested in some locations of Kamba, whose origin remains unclear.
The third Common Bantu item in this correspondence series, again, attests to the opposition between /nð/ and /ð/. In this case, however, the relevant segments are found inside the stem:

(61)	479 alone	CB *-yóncè C.S. 2123	>	*-ɔnðɛ*	widespread in Kamba
			>	*-ɔðɛ*	Gikuyu, Ndia, Gichugu and five locations of Kamba

Next to the two forms listed in (61), the following forms are attested for the keyword *alone*: *-ɔndɛ* in all of Eastern and *-ɔnzɛ* in four locations of Kamba. The relatively high degree of partial divergence may indicate language contact. Finally, Embu-Mbeere and their western neighbors show the opposition between /nð/ and /ð/ under the keyword *mercy*:

(62)	537 mercy	*nðaa*	Embu-Mbeere
		ða	Western

Due to the lack of sufficient data and the unclear historical background of the items discussed above, this series needs to be considered inconclusive. Even in those cases which show regular connections to Common Bantu, some aberrant forms appear; it is difficult to assess whether internal or external change has played the more important role in the context of correspondence series *NC_2.

f) Correspondence Series |R_2 + i|*

The series |*R_2 + i| divides Central Kenya into four groups on phonetic grounds. With the exception of Kamba, this series coincides with the series *R_1 /_/i/:

[ɾ] = *R_1 /_/i/	[l] =*R_1 /_/i/	[ɽ] = *R_1 /_/i/	[ɐ^y] = |*J_2 + i|
Western: Gikuyu Ndia Gichugu	Embu Mbeere Chuka Mwimbi Muthambi Igoji Miutini	Imenti Nkubu Tharaka	Kamba

*Table 80: Phonetic realizations in correspondence series |*R2 + i|*

The series |*R_2 + i| is established by four lexical items:

075 to cure /
217 to extinguish (CB *-pód- C.S. 1565)
232 to fill
261 to hang up

Table 81: Lexical attestations of series |R_2 + i|*

The lexical items in the series *R_1 /_/i/ show that /r/ and /l/, respectively, in all the relevant dialects relate to Common Bantu *d. This segment, in turn, is realized as /Ø/ in Kamba. In the series |*R_2 + i|, however, some of Kamba shows the extraneous segment /ɕ^y/ (a voiceless alveolo-postpalatal fricative written as /sy/) instead of an expected form with /Ø/, such as *-βɔa* or *-βɔya* (causative). The following two items may be treated together as both relate to the same Common Bantu item:

(63)	075 to cure	CB *-pód- C.S. 1565	>	*-ɦɔria*	e.g. Tharaka
			>	*-ɦɔlia*	e.g. Miutini
			>	*-βɔa*	Kamba
			≠	*-βɔsya*	Kamba
	217 to extinguish	CB *-pód- C.S. 1565	>	*-ɦɔria*	e.g. Tharaka
			>	*-ɦɔlia*	e.g. Miutini
			≠	*-βɔsya*	Kamba

Next to the items listed in (63) above, additional aberrant forms, such as *-ɦɔnia* and *-ɦania*, are attested under the keyword *to cure*, generally suggesting borrowing.
The two other items in this series, *to fill* and *to hang up*, can not be connected to Common Bantu. In each case, they agree with the phonetic realization described by the correspondence series *R_1 /_/i/ for all varieties with the exception of the Kamba dialects.

(64)	232 to fill	*-ʊjuria*	e.g. Tharaka
		-ʊjulia	e.g. Miutini
		-ʊsʊsya	Kamba
	261 to hang up	*-cuːria*	e.g. Tharaka
		-cuːlia	e.g. Miutini
		-suːsya	Kamba

Under the two keywords *to fill* and *to hang up*, there are a number of additional forms, some partially and some fully divergent to the forms listed above (see appendix B for a full synopsis). The high amount of diversity suggests that borrowing may be the case. An additional indication may be the fact that under the keyword *to hang up* aberrant forms occur: The form *-cuːria*, for example, needs to be considered aberrant based on the occurrence of /c/.

In Guthrie's (1967-71) terms, the Kamba form -*su:sya*, in turn, constitutes an "extraneous" item, i.e. both stem-initial /s/ and stem-internal /sy/ are aberrant.
All these considerations suggest that borrowing is involved regarding |*R_2 + i|, especially when it comes to the correspondence between Kamba /sy/ and |r+i | and |l+i |, respectively, in the remaining varieties. However, the low amount of attestations prohibits a thorough testing of this hypothesis. Therefore, this series needs to be considered as generally inconclusive, even though the overlapping with series *R_1 /_/i/ as well as the formal aberrancies described above for Kamba could, possibly, make a case for horizontal language relations.

(5) Conclusions

The above discussion of phono-dialectology may be summarized as follows: By identifying recurrent sound correspondences, 39 comparative phono-series have been established. Six out of these series constitute basic correspondence series, i.e. they are represented by phonological segments that only appear in the relevant series ('monovalent forms'). The remaining series can be classified as parallel series attested to by multivalent forms, i.e. they coincide – or overlap – with other series in certain dialects. The fact that two (or more) series are parallel to each other may be due to internal as well as external language change. Both types of change can be identified in the qualitative review of parallel correspondence series established in this study.
The multidimensional scaling of the dialectometrical results shows that Central Kenya Bantu is divided into a total of four distinct groups in the phonological comparison:

Western Kirinyaga vs. **Eastern Kirinyaga** vs. **Embu-Mbeere** vs. **Kamba**

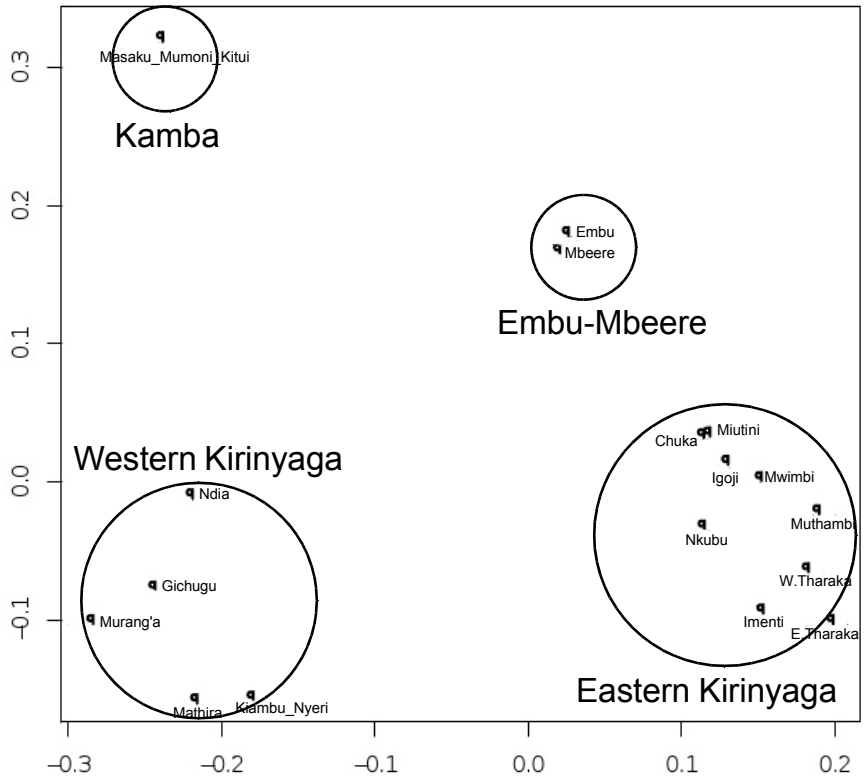


Figure 19: Phonological distances within Central Kenya Bantu

Each cluster represents an area of relatively low phonological variation. The distances depicted in figure 19 above, in turn, represent the fact that each cluster is set apart by a number of phonological features.

The western dialects are geographically separated from their neighbors by the river Rubingazi, which runs down Mount Kenya through the town of Embu. Phonetically, the western dialects are unique in regard to the series *R_1, and *NC_1 as well as *NC_2 and *J. The latter two series remain inconclusive in historical terms; the series *R_1, however, seems to show a genealogical gap between the western dialects and all remaining varieties: Gikuyu, Ndia, and Gichugu are the only varieties to show a realization as the alveolar tap [ɾ]. Since this segment relates to Common Bantu *d, the phonetic difference between the western dialects and all their neighbors may be attributed to divergence. In the series *NC_1, in turn, the western dialects are the only varieties to show [nʒ] (pre-nasalized voiced prepalatal fricative), which relates to the pre-nasalization of Common Bantu *j (attested to by the series *NJ). Again, this difference between Western Kirinyaga and the remaining varieties is due to divergence.

Embu and Mbeere are located between the two rivers Rubingazi and Thuci, i.e. they are geographically intermediate between the western and eastern dialects. In phonological terms, Embu and Mbeere are unique in regard to the two series *P_1 and *MB_2/_/i, u/. In both cases, they are the only two varieties to show labio-dentals. The series *P_1 (relating to Common Bantu *p) is represented by /v/, the series *MB_2/_/i, u/ (relating to Common Bantu *mb) by /mv/. This dentalization is unique in Embu-Mbeere. If it were not for this type of unique segments, Embu-Mbeere would be clustered with their eastern neighbors. In other words, Embu-Mbeere may be included into the eastern cluster on phonological grounds, except in regard to *P_1 and *MB_2/_/i, u/.

The Eastern dialects are situated on the eastern slopes of Mount Kenya, i.e. they comprise all varieties from Chuka northwards throughout Imenti including Tharaka. As mentioned above, Embu-Mbeere may be considered a part of this group on phonological grounds – except that Embu-Mbeere is unique in the dentalization of Common Bantu *p and *mb. In the series *R_1, Eastern and Embu-Mbeere show [ɽ], a flap realization of Common Bantu *d (divergence), which is unattested otherwise. In addition, the eastern dialects (in this case: including Embu-Mbeere) are distinct from Western and Kamba in regard to the realization of /g/ in front of /i/ and /u/, i.e. they obey particular rules according to the vocal environment. As /g/ relates to Common Bantu *g, this can also be considered a case of linguistic divergence – the eastern dialects, including Embu-Mbeere, seem to have developed a rule that triggers a plosive realization of /g/ when followed by /i/ or /u/. Whereas the remaining varieties show a fricative realization as [ɣ] throughout.

Kamba is located in the south and east of River Tana and south of River Athi. It is separated from all other Central Kenya Bantu languages by three correspondence series: It is the only variety to show a lenis consonant in *R_1 (relating to Common Bantu *d) and *G (relating to Common Bantu *g). Moreover, Kamba is the only language in Central Kenya not affected by Dahl's Law (*K_3).

Cluster	Approximate Location	Unique in regard to
Western	West of Rubingazi River	*R_1, and *NC_1
Eastern (incl. Embu-Mbeere)	East of Rubingazi River	*R_1 and *G/_/i, u/
Embu-Mbeere	Between Rubingazi and Thuci	*P_1 and *MB_2/_/i, u/
Kamba	South and east of Tana River	*R_1, *G, and *K_3

Table 82: Phonological divergence in Central Kenya Bantu

In addition to the divergence processes summarized in table 82, the qualitative analysis of the phonological data reveals linguistic convergence, i.e. language contact. We may distinguish between internal borrowing within Central Kenya and external borrowing from languages outside the area.

The fact that the two series *NJ and *NC_1 merge in the western dialects, Embu-Mbeere, and Kamba, while they diverge in the eastern dialects points towards internal borrowing. In Western, Embu-Mbeere, and Kamba, the inherited segments /nj/ and /nz/ (Kamba), respectively, occur in both series, while the eastern dialects show apparently diffused segments in *NC_1. This represents the linguistic influence the western dialects, Embu-Mbeere, and Kamba have had on their neighboring languages in the eastern foothills. Borrowing clockwise around Mount Kenya from Western and Embu-Mbeere into Eastern may be called 'montane borrowing', while diffusion from the lower plains of Kamba territory into Eastern constitutes 'uphill borrowing'.

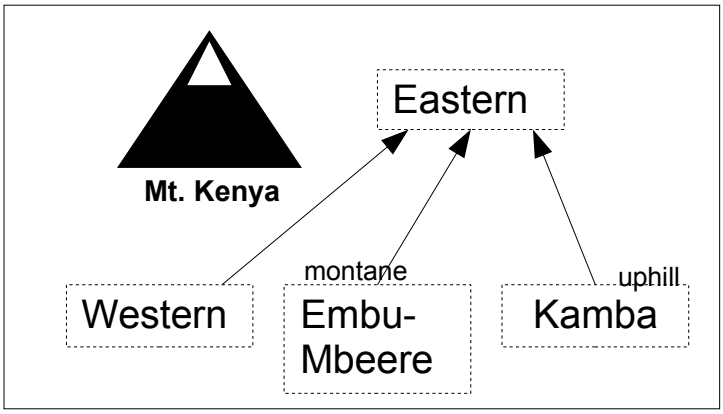


Figure 20: Internal diffusion into Eastern Kirinyaga (NC_1)*

A case of uphill borrowing is shown by the series *P_2: In this series, almost all varieties show the approximant /β/ which is to be considered as inherited only in Kamba as well as Ndia and Gichugu (< CB *p). We are safe in claiming that /β/ constitutes a loan phoneme outside Ndia, Gichugu, and Kamba. Possibly, /β/ was introduced into the eastern and most of the western dialects by language contact with Kamba. However, Swahili contact has also played a role in this context – thus, both internal and external contact are to be considered in regard to the series *P_2.

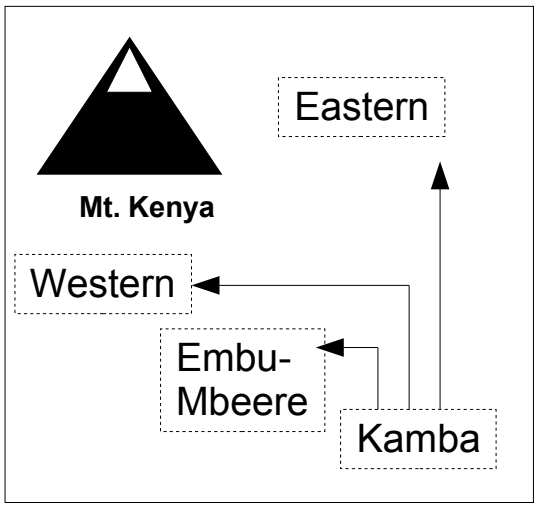


Figure 21: Uphill borrowing from Kamba (P_2)*

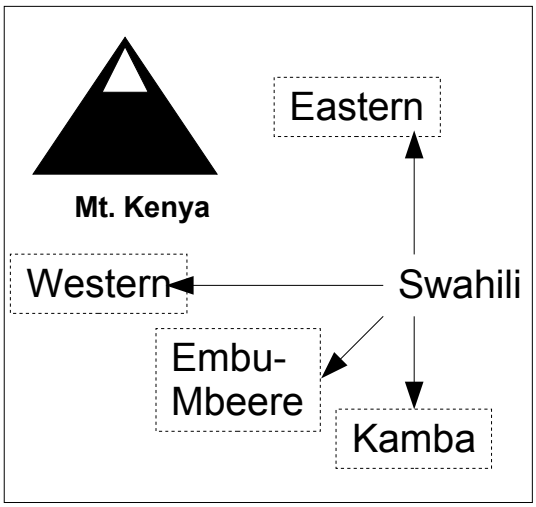


Figure 22: Swahili borrowing into CKB (P_2)*

The series *R_3 attest to both internal and external contact as well. With the exception of Kamba, all dialects show the inherited segment /r/ in this series. In Kamba, in contrast, the loan phoneme /l/ occurs, which was induced by downhill borrowing from the languages in the vicinity of Mount Kenya as well as by borrowing from Swahili.

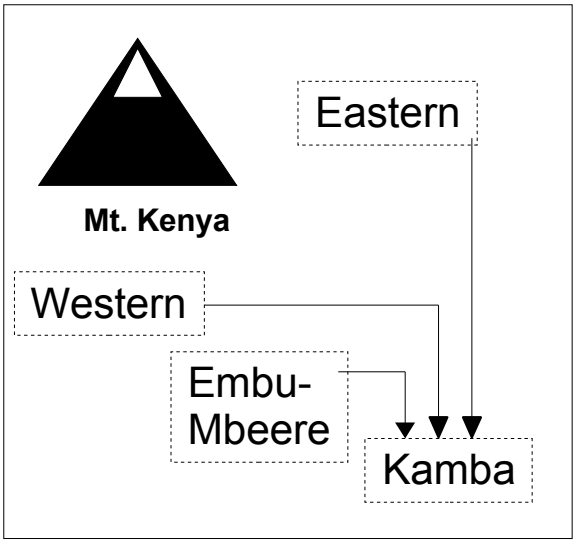


Figure 23: Downhill borrowing into Kamba (R_3)*

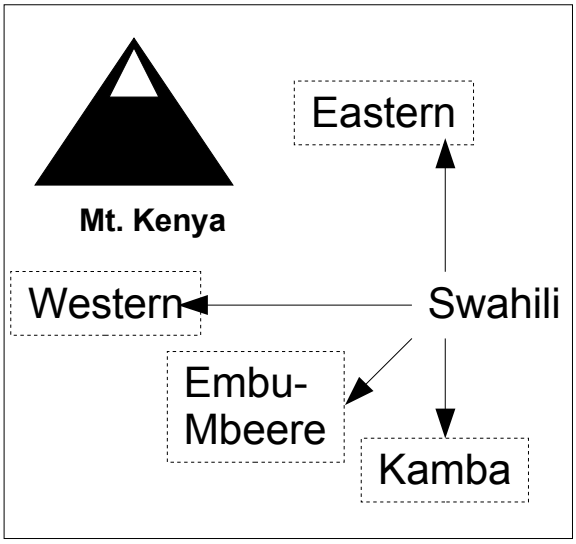


Figure 24: Swahili borrowing into CKB (R_3)*

The series *C_1 seems to show both internal and external contact. The relevant segments appearing in this series cannot be related to archaic forms (from Common Bantu). In many cases the attesting items originate from Swahili. Possibly, they were transferred into Central Kenya Bantu via Kamba, which is situated most closely to the East African coast. In addition, some attestations in this series seem to point towards mutual borrowing from unknown donor languages. Both borrowing from Swahili and yet unidentified donors is also exhibited by the series *MP_2, for which the lexical evidence is, however, relatively thin.

The comparison between the two series *C_2 and *C_3, in turn, shows different borrowing direction of Swahili items within Central Kenya Bantu. As pointed out in the previous paragraph, the series *C_1 attests to a possible dispersal of Swahili words via Kamba. The series *C_2, in contrast, separates Western from all remaining dialects in the fact that these are the only varieties to show integration (as opposed to adaptation) of the relevant Swahili items in this series – they use the inherited segment /ð/ (< CB *c). In the series *C_3, in contrast, the eastern dialects show integration as well. We may conclude that the Swahili items attesting to the series *C_3 have been transferred into Eastern via Gikuyu rather than Kamba.

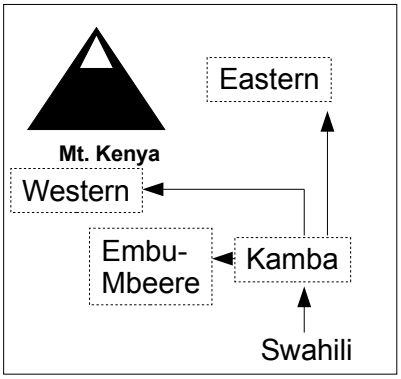


Figure 25:
Swahili diffusion into CKB via Kamba (C_1)*

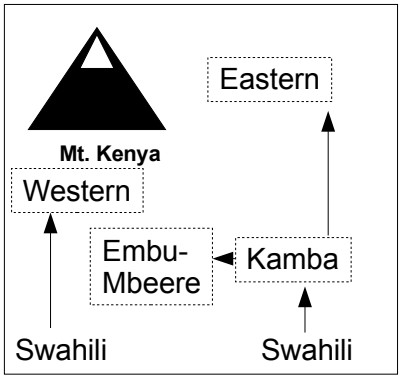


Figure 26:
Swahili diffusion into Western vs. via Kamba (C_2)*

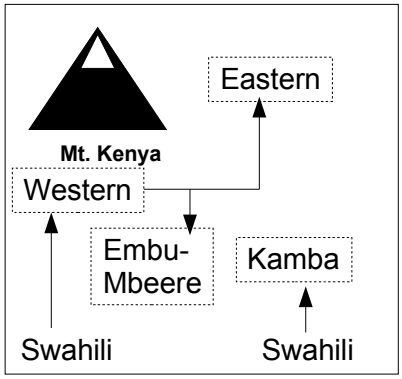


Figure 27:
Swahili diffusion via Western (C_3)*

Finally, the phoneme systems of the western dialects, Embu-Mbeere, and Kamba seem to have been affected by Maasai contact, that has never impacted the remaining varieties on the eastern slopes of Mount Kenya. In all of Western, Embu-Mbeere, and Kamba the series *NK merges with *NG; *NT coincides with *ND. In the remaining varieties, no overlapping of these series can be observed. While it is impossible to entirely rule out parallel developments or chance as the reason behind these mergers, it is plausible to explain this particular situation by Maasai contact, as the devoicing of pre-nasalized plosives is attested for Maasai as well. Western, Embu-Mbeere, and Kamba – the only varieties affected by this devoicing – are or used to be adjacent to Maasai territory (Tucker & Mpaayei 1955). As I further discuss in chapter 4, there is a plausible contact scenario provided by the oral traditions that make Maasai contact seem a plausible explanation for the merges of *NK with *NG and *NT with *ND in Western, Embu-Mbeere, and Kamba.

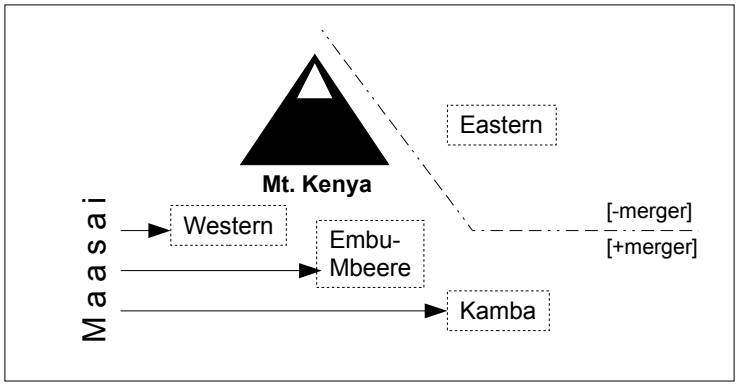


Figure 28: Maasai influence in Western, Embu-Mbeere, and Kamba

The following table summarizes the convergence processes identified by qualitative phono-dialectology:

Series	Contact	
Merger of *NJ - *NC_1	Western Embu-Mbeere Kamba	→ Eastern
*P_2	Kamba /β/	→ all remaining varieties
	Swahili [+labial]	→ all of CKB
*R_3	West / East / Embu-Mbeere	→ Kamba
	Swahili	→ all of CKB
*C_1	unknown donor	→ all of CKB
	Swahili	→ all of CKB
	Swahili → Kamba	→ all remaining varieties
*C_2	Swahili	→ all of CKB
	Swahili → Kamba	→ Eastern, Embu-Mbeere
	Swahili → Gikuyu	no further diffusion
*C_3	Swahili → Gikuyu	→ Eastern
	Swahili → Kamba	no further diffusion
Merger of *NK - *NG and *NT - *ND	Maasai	→ Western, Embu-Mbeere, Kamba

Table 83: Phonological convergence in Central Kenya Bantu

3.2 Lexicon

In this section, the lexical data is subject to both a quantitative (section 3.2.1) and a qualitative (section 3.2.2) dialectological review. The following pages discuss the dialectometrical analysis of the lexical data and present its results. In section 3.2.2, the data are analyzed qualitatively in order to distinguish inherited from diffused lexical material.

3.2.1 Quantitative Dialectology: The Dialectometrical Analysis

I mentioned in section 2.2.3 that the quantitative analysis of the lexical data requires a more elaborated system of evaluation than the binary approach to phonological variation provides: In contrast to phonological variation, which can be described by a binary code (by means of feature analysis), lexical variation is gradual: Compared meanings may show either (1.) identical, (2.) partially divergent or (3.) fully divergent forms. Partial divergence describes a relation between lexical items that are similar to each other, yet divergent in terms of phonology and / or morphology. The following examples of partially divergent nouns and verbs may serve to demonstrate these categories:

1. Phonological divergence

015 mouth	1.	ka.ɲua	A_1
	2.	ka.nua	A_2
	3.	ka.ŋwa	A_3
068 to cough	1.	-u:ma	A_1
	2.	-uma	A_2
	3.	-ʊma	A_3

2. Morphological divergence

025 left hand	1.	ʊ.məðɔ	A_1	(class 14)
	2.	kɪ.məðɔ	A_2	(class 7)
150 to give	1.	-nɛng.a	A_1	(no verbal extension)
	2.	-nɛng.ɛr.a	A_2	(applicative)
	3.	-nɛng.an.a	A_3	(reciprocal)

3. Accumulated divergence (phonological <u>and</u> morphological)

138 language	1.	rʊ.ðiɔmi	A_1	(class 11)
	2.	kɪ.ðyɔmɔ	A_2	(class 7)
136 to call	1.	-ɪ:t.a	A_1	(no verbal extension)
	2.	-ɪt.an.a	A_2	(reciprocal)

In this study, the method of dialectometry is implemented electronically by means of the programme *OpenCalc* and the statistics software *R*. The following paragraphs provide a description of the different steps from raw lexical data to generating dialectometrical results.
In a first step, the raw language data are converted into 'rendered data' for each one of the 496 lexical items to be compared. Instead of working with actual word forms, strings of characters, such as A1, A2 etc., are substituted in the data base. As mentioned in section 2.2.3, identical word forms are assigned the same Roman letter. Divergent word forms are represented by a capital Roman letter followed by an Arabic number. For example: Table 84, showing the raw language data for the keyword *mouth* in each location, is converted into table 85 in the first step:

Loc.	**1a**	**1b**	**2**	**3a**	**3b**	**4**	**5**	**...**	**104**	**105**
	ka.ɲua	ka.ɲua	ka.ɲua	ka.ɲua	ka.ɲua	ka.ɲua	ka.ɲua		ka.nua	ka.nua

Table 84: Raw language data for the item 015 mouth (excerpt)

Loc.	**1a**	**1b**	**2**	**3a**	**3b**	**4**	**5**	**...**	**104**	**105**
	A1	A1	A1	A1	A1	A1	A1		A2	A2

Table 85: Rendered data for the item 015 mouth (excerpt)

After the raw language data have been transformed into rendered data, the tables for each keyword are recoded with the software *R* in a second step in order to generate matrices for each item in the lexical data. Thus, in the second step, the data in table 85 are arranged as the following matrix:

	1a	**1b**	**2**	**3a**	**3b**	**4**	**5**	**...**	**104**	**105**
1a	0	A1:A1	A1:A1	A1:A1	A1:A1	A1:A1	A1:A1		A1:A2	A1:A2
1b	A1:A1	0	A1:A1	A1:A1	A1:A1	A1:A1	A1:A1		A1:A2	A1:A2
2	A1:A1	A1:A1	0	A1:A1	A1:A1	A1:A1	A1:A1		A1:A2	A1:A2
3a	A1:A1	A1:A1	A1:A1	0	A1:A1	A1:A1	A1:A1		A1:A2	A1:A2
3b	A1:A1	A1:A1	A1:A1	A1:A1	0	A1:A1	A1:A1		A1:A2	A1:A2
4	A1:A1	A1:A1	A1:A1	A1:A1	A1:A1	0	A1:A1		A1:A2	A1:A2
5	A1:A1	A1:A1	A1:A1	A1:A1	A1:A1	A1:A1	0		A1:A2	A1:A2
...								0		
104	A2:A1	A2:A1	A2:A1	A2:A1	A2:A1	A2:A1	A2:A1		0	A2:A2
105	A2:A1	A2:A1	A2:A1	A2:A1	A2:A1	A2:A1	A2:A1		A2:A2	0

Matrix 4: LexMatrixA for the item 015 mouth (excerpt)

Matrix 4 shows whether any two locations concur in respect to the different word forms appearing under the keyword *mouth*. For example, the locations 2 and 5 both show form A_1; the comparison between the two locations 2 and 104, in contrast, shows the partially divergent forms A_1 and A_2.
In a third step, the actual language affiliations between the different locations are evaluated. The strings of characters in each cell of LexMatrixA are substituted with identity values. In

dialectometrical analysis, lexical identity and divergence are rated according to the following scale (cf. Guarisma and Möhlig 1980):

Identity	= 4 Points	e.g. A:A, B_1:B_1
Morphological Divergence	= 3 Points	e.g. A_1:A_2, B_1:B_2
Phonological Divergence	= 2 Points	e.g. A_1:A_2, B_1:B_2
Accumulated Divergence	= 1 Point	e.g. A_1:A_2, B_1:B_2
Full Divergence	= 0 Points	e.g. A:B, B_1:C_1

This scale of evaluation represents the fact that the method of dialectometrical analysis is a stem-based approach to lexical variation: If two word forms show identical roots, but differ, for example, in terms of noun class markers, they are considered to be more closely related to each other than two stems showing phonological divergence. The third step of dialectometrical analysis yields a similarity matrix LexMatrixB:

	1a	**1b**	**2**	**3a**	**3b**	**4**	**5**	**...**	**104**	**105**
1a	0	4	4	4	4	4	4		2	2
1b	4	0	4	4	4	4	4		2	2
2	4	4	0	4	4	4	4		2	2
3a	4	4	4	0	4	4	4		2	2
3b	4	4	4	4	0	4	4		2	2
4	4	4	4	4	4	0	4		2	2
5	4	4	4	4	4	4	0		2	2
...								0	2	2
104	2	2	2	2	2	2	2		0	2
105	2	2	2	2	2	2	2		2	0

Matrix 5: LexMatrixB for the item 015 mouth (excerpt)

Matrix 5 shows the absolute similarities between locations, i.e. it represents the linguistic affiliations in regard to the keyword *mouth*. The procedure described above is repeated for each one of the 496 keywords in the lexical data base. Finally, in a fourth step, all LexMatricesB are summed up, while the frequency of occurrence of each token is tracked. The latter is carried out in order to maintain the statistical robustness of the overall results. Generally, the lexical data table with 125 locations (columns) and 496 keywords (rows) is expected to consist of 125 x 496 = 62,000 tokens.

However, in some cases during the elicitations, a few interviewees were not able to come up with an appropriate response to a specific keyword. The relevant cell in the data base is left empty (in a total of 431 instances). When the relevant data matrices are set up and the strings of characters, such as A1:A2, are substituted with identity values from zero to four in the third step of our procedure, such empty cells pose a challenge to statistical robustness. Fully divergent items, such as A:B, are counted as zero in the dialectometrical calculations. If, however, two locations, of which one shows a missing entry, are compared to each other, the relation between these two locations is also counted as zero. Consequently, it needs to be distinguished for each case of a zero-relation between two locations, whether zero represents

two fully divergent word forms, or rather shows that in one of the two compared cases the relevant data are missing. By tracking the frequency of occurrence, i.e. how many instances are actually compared for a specific location, it is made sure that these two cases are kept separate from each other.
Thus, the final step of this procedure yields two matrices: The first one represents the absolute identity values, i.e. absolute similarites between the locations of Central Kenya Bantu. The second one, the frequency matrix, shows the number of compared items. Accordingly, matrix 7 below shows that in the comparison of the two locations 16a and 16b (Igoji) only 492 items (out of 496) are compared, as the informant in location 16b was not able to come up with an appropriate answer in a total of four cases:

13	0	2025	1984	1933	1912	
14	2025	0	2005	1924	1911	
15	1984	2005	0	1926	1925	
16a	1933	1924	1926	0	2013	
16b	1912	1911	1925	2013	0	
...						
	13	14	15	16a	16b	...

Matrix 6: Sum matrix showing the absoulte similarities between locations 13 - 16b (Igoji)

13	496	496	496	492	492	
14	496	496	496	492	492	
15	496	496	496	492	492	
16a	492	492	492	496	492	
16b	492	492	492	492	496	
...						
	13	14	15	16a	16b	...

Matrix 7: Frequency matrix showing the number of occurrences (i.e. number items compared)

In order to generate relative similarities, (sum) matrix 6 is divided by (frequency) matrix 7. This division yields the overall dialectometrical result representing the relative lexical distances between the languages and dialects of Central Kenya Bantu. Missing entries in the data base are taken into account in the final results and the statistical robustness of the outcome is maintained. With a total of $125^2 = 15{,}625$ cells, the similarity matrix representing the lexical overall result is by far too large to be shown here. The multidimensional scaling of these results, however, provides a comprehensive overview of the lexical distances. The lexical distances are shown in figure 29 on the following page.
Tracking the frequency of occurrence serves yet another purpose in maintaining statistical robustness: In the following section 3.2.2, the lexical data are subject to a qualitative analysis. In this process, the lexical data are analyzed in groups of meanings, i.e. semantic fields. Some of these fields contain a large amount of items, e.g. the domain 'The Body' with 71 entries, while others consist of less entries, e.g. the domain 'Clothing and Grooming' with only 13 keywords. Since the *relative* similarities are calculated for each semantic field, the result of each domain is guaranteed to be comparable to the others. Thus, we can directly compare the lexical distances between all locations in one semantic field with the lexical distances in another.
The picture below in figure 29 shows a general three-way split of Central Kenya Bantu, i.e. Kamba and the western dialects (Gikuyu, Ndia, and Gichugu), respectively, are set apart from the remaining dialects. In the lower left corner of the picture, the Eastern Kirinyaga dialects are located, i.e. all dialects from Chuka in the south to Imenti (Meru) in the north, including Tharaka. Embu and Mbeere seem to be somewhat distant to their north-eastern neighbors, the dialects on the eastern slopes of Mount Kenya. Embu-Mbeere is situated somewhat intermediate between its eastern and its western neighbors. This is obvious from a first glance at figure 29: The lexical distances between Embu-Mbeere and Gikuyu are approximately the same as between Embu-Mbeere and the dialects in the area of river Nithi, i.e. Mwimbi and Muthambi. However, Embu-Mbeere seems to connect to the chain of eastern varieties and,

therefore, may be considered to be most closely affiliated with its eastern neighbors. Tharaka, on a final note, is clearly distinct from its neighbors, however, most closely affiliated with the adjacent dialects of Igoji and Miutini.

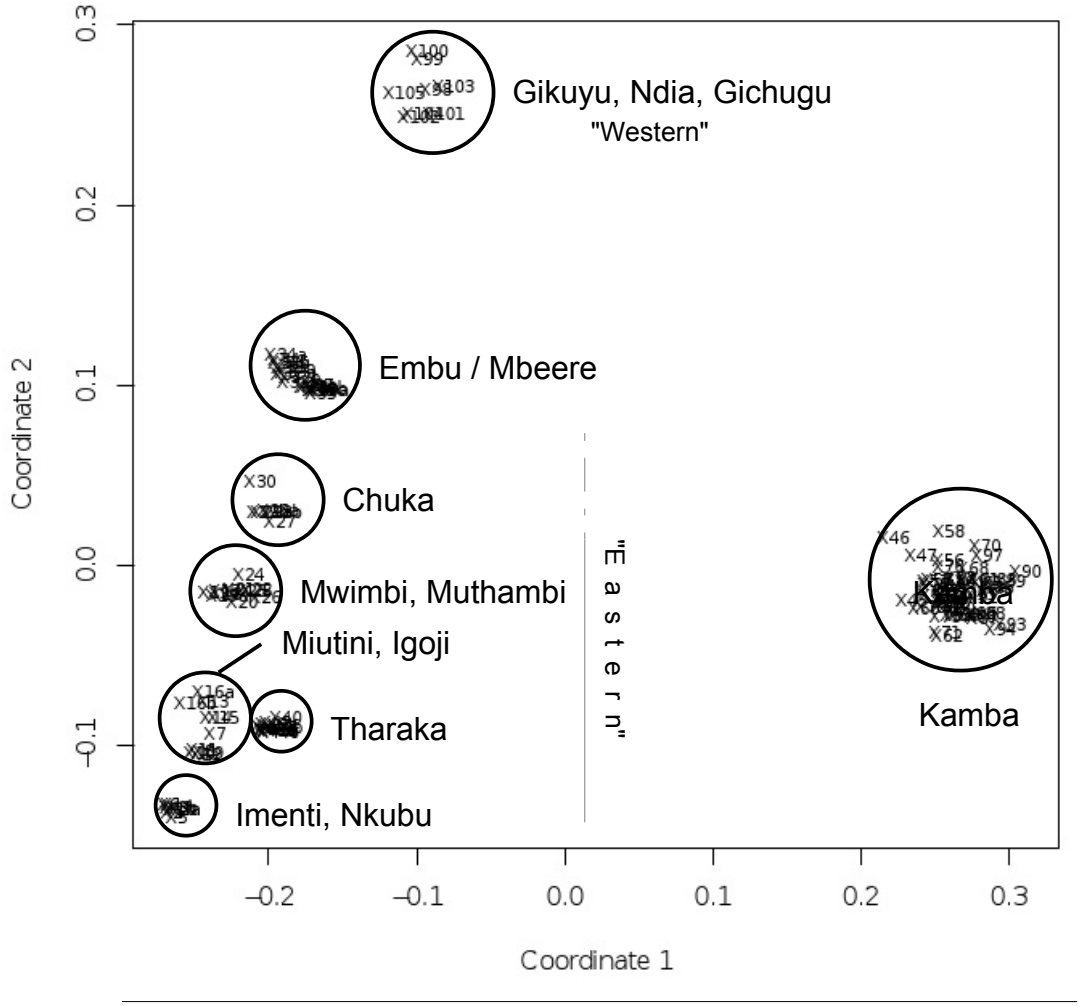


Figure 29: Lexical Distances in Central Kenya Bantu

3.2.2 Qualitative Analysis: Inheritance versus Contact

This section aims at distinguishing inherited from borrowed lexical material. In section 2.3.2, I discussed the parameters used in order to identify borrowed linguistic material and, thereby, separating it from the genetically inherited linguistic inventory. In regard to the lexical data, the following three criteria are applied:

- marked distribution of lexical items
- formal aberrance of lexical items
- the semantic background of lexical items

The following paragraphs provide a detailed discussion of the lexical data. A number of formally aberrant words is discussed, followed by a detailed treatment of different semantic classes.

(1) The Coexistence of Regular and Irregular Word Forms

The first type of aberrant forms to be investigated are irregular words that exist alongside regular forms. In section 3.1.2, I discussed the different sound correspondence series defined by recurrent sound correspondence. This term subsumes both regular and irregular correspondences. These two types may be distinguished based on the number and distribution of lexical items that attest to a particular instance of sound correspondence. Formal aberrance may provide a clue on whether a particular case of sound correspondence is regular or irregular.
Regular correspondence represents a genealogical relationship between dialects based on shared innovations. Irregular correspondences may, in contrast, indicate language contact. I showed in section 3.1.2, for example, that the series labeled $*R_1$ is attested by far more lexical items than the series $*R_3$. In the latter series, a number of formally aberrant items showing the loan phoneme /l/ can be observed in Kamba. This indicates that, in respect to this series, the affiliation between Kamba and the remaining varieties is based on language contact, i.e. downhill borrowing and mutual borrowing from Swahili.
There is a number of cases in which both regular and irregular forms occur under the same keyword. These lexical items are the result of a specific linguistic situation, which may be described as follows: Some of the relevant dialects use word forms that are regular to each other and were transmitted vertically into these varieties; in many cases from Common Bantu. Other dialects show words that are similar – yet only irregularly related – to these inherited forms. These aberrancies, we are safe to assume, are the result of contact. From a dialectological perspective, we could say metaphorically that such items 'cut' across the lines of regular and irregular sound correspondences (see section 2.3.2 for a discussion of so-called 'multi-valent forms'). The following cases have been identified as such instances in which regular and irregular word forms co-exist side by side:

a) $*R_1$ versus $*R_3$

As shown in section 3.1.2, the correspondence series $*R_1$ is represented by /Ø/ in Kamba and by /r/ in all other languages – /Ø/ and /r/ correspond regularly. The series $*R_3$, in contrast, shows a recurrent, yet irregular, correspondence between /l/ in Kamba and /r/ in the

remaining varieties. In the following cases, representatives of both series, *R_1 and *R_3, are attested side by side under the same keyword:

024 elbow Most of the Central Kenya Bantu languages use some form seemingly going back to Common Bantu *-kókùdà C.S. 1130 to denote the concept of 'elbow'. For example, the Common Bantu item seems regularly reflected as *kɪ.gɔkɔra* in Gikuyu, Ndia, and Gichugu. In accordance with the correspondence series *R_1, it is reflected as the regular form *kɪ.kɔkɔa* in Masaku-Kamba. However, in a few Kamba locations, additional forms, such as *ngɔkɔla* and *ngɔkɔlya,* are attested. Both show limited distribution. The fact that these two forms show /l/ and their restricted distribution suggest that they were borrowed from the varieties in the vicinity of Mount Kenya. Generally, all of these dialects on the lower slopes of the mountain are possible donors. Tharaka and Gikuyu are, however, the most probable ones from a geographic point of view. On a side note, Cushitic influence cannot be ruled out. Ehret (1980: 245) lists the relevant item **konkoolo*, Kießling and Mous (2003: 340) list the form **gongooxi* for Proto-Iraqwoid. Possibly, there are some truly areal roots involved here, i.e. relevant forms are attested across the lines of language phyla.

039 skin A few locations in Kamba as well as the dialect of Gichugu use similar forms for this keyword. In Gichugu, *rua* is used, which is related to *ʊ.ʊa* (*R_1), attested in two locations of Mumoni-Kamba. One location in western Masaku and one in southeastern Kitui use *kɪ.lʊa*, while *ka.lʊa* is attested for one location in Kitui-Central. The occurrence of /l/ suggests that the former two items are loanwords – *rua* being a conceivable source word. The western dialects probably used similar forms in the past (cf. Benson 1975: 263), which were eventually all replaced by the Swahili loan *ngɔðɪ.*

059 snoring The concept of snoring is expressed by the word *-ŋɔrɔta* in Embu, Mbeere, Gikuyu as well as Ndia and Gichugu. In accordance to the series *R_1, this item is regularly reflected as *-ŋɔɔta* in a few locations of Kamba. Three locations in Masaku and Kitui use the loan *-ŋɔlɔta,* which is borrowed from the form *-ŋɔrɔta* prevailing in Embu, Mbeere, and Gikuyu.

087 to wait This keyword is expressed by a total of six similar forms in Central Kenya Bantu – the relatively high amount of divergent forms is due to borrowing. In the dialects in the immediate south and east of Mount Kenya, *-ɛːtɛɛra* and *-ɛːtɛrɛra* are used. In the western varieties of Gikuyu, Ndia, and Gichugu, *-ɛtɛrɛra* is attested. All of these forms correspond to *-ɛtɛɛa* in Kamba (*R_1). Next to this form, Kamba shows a relatively widespread use of *-ɛtɛɛla* and a quite restricted distribution of *-ɛtɛɛlɛla*. The latter word form is borrowed either from *-ɛːtɛrɛra* or *-ɛtɛrɛra.* The loanword *-ɛtɛɛla* goes back to *-ɛːtɛɛra*. The two forms in Kamba that show /l/ were borrowed from the varieties in the vicinity of Mount Kenya.

288 pig All of Central Kenya Bantu uses forms that go back to Common Bantu *-gùdùbè C.S. 888, which is reflected as *ngʊ(w)ɛ*, *ngʊʊ(w)ɛ* and *ngʊɛ ɛ* in Kamba, and as *ngʊrʊɛ* in all other varieties. Kamba, moreover, shows the use of *ngʊlʊ(w)ɛ*. This word is clearly a loanword: Not only is it aberrant in structure, as the occurrence of /l/ shows, but it is less widespread than the regular item *ngʊɛɛ*. The varieties on the slopes of Mount Kenya are possible

donor languages; it can, however, not be ruled out that Kamba borrowed this item from Swahili *nguruwe.*

350 to begin This verb is expressed in most dialects by a word relating to Common Bantu *-yàmb- C.S. 1914. This item is reflected as *-ambɪɪa* in most of Kamba and as *-ambɪrɪrɪa* in most of the other varieties. In Kamba, however, the two forms *-ambɪlɪlɪa* and *-ambɪlɪlɪa* are attested as well. They generally show a relatively limited distribution and are most likely borrowed from the languages uphill.

359 to turn Most Gikuyu dialects as well as Gichugu use the forms *-ðirʊrʊkia* and *-ðirukia* respectively. These two correspond regularly to Kamba *-ðyʊʊkya*, *-ðʊʊ(w)a*, and *-ðyʊʊk a* (*R_1). Less widespread than these items in Kamba are the loanwords *-ðyʊlʊlʊk(y)a* and *-ðɪʊlʊlʊsia*, which were borrowed from Gikuyu.

456 path All dialects in Central Kenya express this concept by a form that ultimately goes back to Common Bantu *-jìdà C.S. 940. Most dialects on the slopes of Mount Kenya use *njɪra*, which corresponds regularly to the widespread Kamba form *nzɪa* (*NJ and *R_1). In Gikuyu, *ga.cɪra* and *ga.sɪra* are attested. Four Kamba locations in the Mumoni hills have borrowed these forms as *ka.sɪla* and *ka.syɪla*.

512 weight The relevant Common Bantu item for this word is *-dịtò C.S. 631. This item is reflected as *ʊ.ritu* in the western dialects, as *ʊ.itɔ* in most of Kamba, as well as *ʊ.ritɔ* in the rest of Central Kenya Bantu. A few Kamba locations, additionally, show the loanword *ʊ.litu*, which was directly borrowed from the western dialects of Gikuyu, Ndia, and Gichugu.

In sum, the co-existence of regular (*R_1 > /Ø/) and irregular (*R_3 > /l/) word forms in Kamba indicates borrowing. In eight out of the nine cases discussed above the occurrence of aberrant shapes in Kamba showing /l/ seems to be due to downhill borrowing, i.e. language contact between Kamba and its neighbors in the vicinity of Mount Kenya.

*b) *C_1 versus *C_3*

I showed in chapter 3.1.2 that the correspondences represented by the series *C_1 seem to be based on language contact. The series *C_3, in contrast, represents that Common Bantu *c is reflected as /ð/ in all of Central Kenya Bantu. The following cases show the co-existence of representatives of both series *C_1 and *C_3 under the same keyword:

251 axe This concept is express by a variety of different word forms. All of Kamba, Tharaka, Muthambi, and Chuka as well as a few additional locations on the eastern slopes use the forms *ka.ðɔka* and *ɪ.ðɔka,* which relate to Common Bantu *-còká C.S. 372. In Imenti and a few scattered locations in the east and south of Mount Kenya, the forms *ɪ.cɔka* and *cɔka* occur. Since Common Bantu *c is reflected as /ð/ in all of Central Kenya Bantu, the latter two forms need to be considered irregular. The scattered distribution confirms the view that these were borrowed. The source word is Swahili *shoka*.[11]

284 to churn The notion of churning milk is mostly expressed by the form *-ðuka ɪ.riːa*. The verb *-ðuka* is considered regular. The two Gikuyu dialects Murang'a and Mathira show, however, the aberrant forms *-ðusa* and *-cuka* respectively. The

11 In Imenti, Nkubu, Miutini, and Igoji, a Maasai loanword is attested, while Gikuyu, Ndia, Gichugu, Embu, and Mbeere use yet another form that seems to be common only to these varieties in the west of the river Thuci (see the relevant synopsis in appendix B for a full overview).

latter verb might have developed under the influence of the Swahili expression *-sukasuka maziwa*. This seems also likely for the form *-ðukaðuka*, which is attested in one location of Nyeri.

579 narrow For this keyword, five similar word forms are used. The prevailing form is *-cɛkɛ*. Tharaka and Kamba show *-cɛgɛ* and *-ðɛkɛ* respectively, both aberrant forms. Possibly, there are some horizontal language relations involved, their exact nature can, however, not be specified.

583 bad The prevailing form under this keyword is *-ðuːku*, attested for all varieties except for Chuka, Gikuyu, Ndia, and Gichugu, where fully divergent forms are used. In the Gikuyu dialect of Kiambu, the word *-cʊku* is used, which shows only slight phonological differences to the prevailing form of *-ðuːku*. The reason why Kiambu diverges is unclear.

The former two items discussed here, *axe* and *to churn*, attest to borrowing from Swahili into the languages on the southern and eastern foothills of Mount Kenya. The latter two items, *narrow* and *bad*, suggest language contact as well – however, the donor languages in these cases remain unclear.

*c) *C_2 versus *C_3*

The correspondence series *C_2 is only attested by Swahili loanwords. As pointed out in chapter 3.1.2, this series shows how the western dialects of Gikuyu, Ndia, and Gichugu integrate Swahili /s/ as /ð/, while Kamba uses /s/ in such cases; all other dialects incorporate the relevant Swahili items using /c/. The following two cases show how the two correspondence series *C_2 and *C_3 coincide:

415 shorts Most of the items under this keyword go back to Swahili *suruali.* This is a concept that was introduced to the Kenyan Highlands fairly recently. According to the correspondence series *C_2, Swahili words showing the voiceless alveolar fricative /s/ are incorporated by Embu speakers using /c/, realized as a voiced prepalatal fricative [ʃ]. In Gikuyu, in contrast, such words are integrated into the lexicon by substituting Swahili /s/ with the voiced dental fricative /ð/. In the case of the keyword *shorts*, the aberrant form *ðurubari* is attested for Embu, when a form with /c/ can be expected according to the series *C_2. This reveals that this item was not directly transferred from Swahili into Embu but rather via the Gikuyu dialects in the west.

417 to iron The concept of ironing clothes is a relatively new innovation in the Kenyan Highlands. Consequently, all varieties use a form that goes back to Swahili *-piga pasi*. The Swahili word *pasi* originates from Hindi and is reflected as *baci* in Imenti, Nkubu, Tharaka, Gikuyu, Ndia, and Gichugu. Kamba shows the corresponding form *basi*. In Miutini, parts of Igoji, Muthambi, Embu and Mbeere, however, the aberrant form *baði* occurs. Since Gikuyu also shows a form with /c/, *baði* obviously does not originate from there. The question why some dialects show this aberrant form must, consequently, be left unanswered. It is possible, though, that *baði* was used in Gikuyu at some point, eventually being transmitted into Embu and Mbeere, from where the form spread further north. In the meantime, this Gikuyu form might have been replaced by *baci* under Kamba influence. The exact history of the relevant word forms is, however, unclear.

*d) *NC$_1$ versus *NC$_2$*

043 blood All varieties show loanwords under this meaning. The two forms *ðarikɛ* and *ndamu*, scattered along the eastern slopes of Mount Kenya, are borrowed from Maasai and Swahili, respectively. Moreover, a total of three similar, yet irregular, forms is attested: (1.) *(n)ðakamɛ*, (2.) *ðakamɛ,* and (3.) *nzakamɛ*. The former two words (1.) and (2.) correspond according to the series *NC$_2$. The latter form (3.), which is attested in a wide rage of Kamba locations, however, is to be considered aberrant. The high diversity and irregularity suggest that borrowing is the case. The form (2.) *ðakamɛ* is attested in all of the Gikuyu dialects as well as in Ndia and Gichugu. Possibly, the item spread from Gikuyu into the other varieties. It was directly borrowed as *ðakamɛ* by Masaku-Kamba. Embu, Mbeere, Chuka, Mwimbi, Muthambi, and Tharaka borrowed this item a s *(n)ðakamɛ*. In turn, Kamba borrowed this item from the southern and eastern slopes of Mount Kenya. As the Kamba phoneme system has no prenasalized dental fricative at its disposal, *nðakamɛ* was incorporated into the Kamba lexicon as *nzakamɛ*. The ultimate origin of all these forms, however, lies in Southern Cushitic **sakamɛ* (Philippson 2013: 85).

542 shame For most dialects, a form connected to Common Bantu *-cónị̀ C.S. 380 is attested. Gikuyu, Ndia, and Gichugu all show *ðɔni*, regularly connected to Common Bantu. This form, in accordance with series *NC$_2$, corresponds to *nðɔni* in all other varieties including the Kamba dialects. Additionally, a substantial number of Kamba locations show the use of the aberrant form *nzɔni*, which would be expected in the correspondence series *NC$_1$. Under the same rationale as proposed above under the keyword *blood*, the Kamba form *nzɔni* seems to be a loanword, that was borrowed from the southern or eastern slopes of Mount Kenya.

Possibly, the two examples of *blood* and *shame* attest to downhill borrowing, i.e. from the vicinity of Mount Kenya into the lower part of Central Kenya that is the territory of the Kamba. The item *blood* also attests to external borrowing from Swahili, Maasai, and Southern Cushitic.

*e) *NT versus *ND*

249 hammer Almost all dialects, except for Chuka and some locations in Kamba, use word forms relating to the Common Bantu items *-dòndò C.S. 706 or *-dúndò C.S. 706. In some locations, especially in Mwimbi and Muthambi, the Common Bantu item is reflected as *ɲɔntɔ*. According to the correspondence series *NT, all of the dialects north of Thuci river have a prenasalized voiceless plosive /nt/ at their disposal. The question here is, why a few of these dialects have, in the case of *hammer*, reflected Common Bantu *nd as /nt/. Considering the series *NT, Miutini and Igoji, for example, could be expected to show such a form. Possibly, the original form genuine to these dialects was indeed *ɲɔntɔ*. By way homogenization, however, this older form might have been replaced by the more widespread form showing a voiced prensalized alveolar plosive.

*f) *G*

209 garden With the exception of one location in Kamba, all dialects use forms relating to Common Bantu *-gùndà C.S. 897. In Gikuyu, for example, the form *mU.gUnda* is used, which corresponds regularly to the Kamba form *mU.Unda*. The relevant correspondence series *G is represented by /g/ in all of Central Kenya Bantu, except for Kamba, where /Ø/ is attested. Consequently, all dialects on the slopes of Mount Kenya are expected to regularly show the form *mU.gUnda*. However, for Imenti, Nkubu, Miutini, and Tharaka, phonologically divergent forms showing /Ø/ are attested, i.e. *mU.Unda, m.uunda,* and *mU.Undu*, respectively. The high diversity as well as the aberrant structure suggest that these three word forms were borrowed from Kamba. From a geographic perspective, it seems most likely that the word *mU.Unda* was first borrowed by Tharaka, from where it spread uphill into Imenti, Nkubu, and Miutini.

*g) *K$_3$ (Dahl's Law)*

023 armpit The elicitation of this keyword yields a total 14 different word forms. Most of these seem to somehow relate to Common Bantu *-kúàpà C.S. 1171. The high diversity of this item may also partially be due to low usage of this concept (and, possibly, borrowing). In regard to this keyword, Gikuyu, Ndia, and Gichugu, differ substantially from most other dialects. Throughout all of these western dialects, the form *nʒɛgɛkɛ* is used. Five locations in Masaku-Kamba use similar word forms. Interestingly, one location in western Masaku (46) uses the exact same form as the Gikuyu dialects. This is insofar unusual, as Dahl's Law is inactive in Kamba. Therefore, a voiceless velar plosive may be expected to be retained even if its followed by an identical segment (see 3.1.2 for a further discussion of Dahl's Law). One location in western Masaku, however, seems to also obey this dissimilatory rule, as *nʒɛgɛkɛ* is attested there. In contrast, another location in Masaku uses *nzɛkɛkɛ*, which corresponds regularly to the original Gikuyu form. In any case, it is safe to say that all of these forms originated from Gikuyu, from where they spread into western Masaku-Kamba by direct language contact.

The majority of the above cases indicates language contact. In most cases, we are safe to assume downhill borrowing, i.e. from the foothills of Mount Kenya into the plains of Kamba. In a few instances, Swahili contact has resulted in the co-existence of regular and irregular word forms.

(2) Generally Aberrant Shapes

Apart from the cases showing the co-existence of regular and irregular word forms under the same keyword, there is a number of items in the lexical data base that show general aberrancies. An item is considered to be aberrant if there is an unusually large amount of diversity to be found under a specific meaning. This may be a wealth of similar, yet irregular, word forms or even a large amount of fully divergent word forms with the same meaning. In the following paragraphs, I discuss the relevant items and assess if the aberrancies concerned are due to borrowing or may rather be traced back to internal language change.

a) Internal borrowing

In the context of internal borrowing, i.e. both the donor and recipient language of a specific word form belong to the Central Kenya Bantu group, there are different directions of borrowing to be identified. The first direction we can identify may be described as going downhill, from the foothills of Mount Kenya towards the east into the lower plains of Central Kenya, which are the territory of the Kamba speakers. In some cases, it is impossible to exactly pin down which of the varieties on the slopes of Mount Kenya is the donor of a particular loanword in Kamba. In other cases,in contrast, the donors become evident.
The Embu and Mbeere share a long history of social interdependence with the Kamba going back to the period of Bantu immigration into the Kenyan Highlands (see section 1.2.2). This view, attested by oral traditions, is confirmed by a number of lexical items that originate in the southeastern foothills of Mount Kenya and spread into Kamba, e.g. the item *to squat*: The majority of the Central Kenya Bantu languages expresses the concept of squatting by literally describing the notion of crouching with the expression *i.karıra ma.gUrU* 'to sit on one's feet'. In Chuka, Embu, Mbeere and some of Tharaka, however, a number of forms are used that are similar, yet irregular, to the forms attested for Kamba:

-tuntumara	C_1	27, 30 (Chuka); 32b, 35 (Embu); 39 (Mbeere)
-cunjumara	C_2	36-39 (Mbeere)
-ðuntumara	C_3	40, 41, 44b, 44c (Tharaka)
-sUsUmala	C_4	45, 54, 55, 58, 82, 84 (Kamba)
-sUnzUmala	C_5	48-53, 57, 59, 60, 61, 64, 65, 66, 67-70, 74, 75, 81, 83, 87, 88, 89, 90-97 (Kamba)
-tUndUmala	C_6	47, 56, 62, 63, 71-73, 76-79, 80, 86 (Kamba)

Table 86: 090 to squat *in Chuka, Embu, Mbeere, Tharaka, and Kamba*

The occurrence of /l/ in the Kamba forms suggests that these words are not genuine to Kamba but were borrowed. All of the varieties mentioned in table 86 are possible donors. The borrowing process can, however, be specified from a formal perspective: The Mbeere form *-cunjumara* was borrowed by the majority of Kamba locations as *-sUnzUmala*. The Tharaka form *-tuntumara* is a possible source word of Kamba *-tUndUmala*. The opposite direction of borrowing, i.e. from Kamba into Tharaka, is less plausible. There is no reason to believe that Tharaka speakers would incorporate a Kamba word showing the voiced segment /nd/ as voiceless /nt/, as Tharaka has /nd/ at its disposal. Kamba speakers, however, have no means of pronouncing /nt/. Therefore, such a segment is always realized as /nd/ by Kamba speakers when borrowing a relevant word originally showing a prenasalized voiceless stop.
Borrowing from Embu and Mbeere into Kamba is also attested by the two items *bird* and *to fly*. In order to express the concept of 'bird', most Central Kenya Bantu languages use forms that go back to the Common Bantu items *-yúnị̀ C.S. 2170 and *-yònị̀ C.S. 2121. In Embu and Mbeere, the irregular form *gı.cɔni* is used. A few Kamba locations have borrowed this word yielding a total of five partially divergent forms:

(65)	342 bird	CB *-yònį C.S. 2121	>	*(kɪ.)ɲɔni*	all of CKB
		CB *-yúnį C.S. 2170	>	*ɲᴜɲi*	Kamba

gɪ.cɔni (Embu, Mbeere) ⟶	*ɪ.sɔni*		74, 82-84
	ɪ.sᴜni	Kamba	68, 69, 85, 87, 92
	ɪ.sɔɲi		73
	ka.sɔni		46, 62, 72, 86
	ka.sᴜni		63, 66

The fact that the forms in Kamba are restricted in terms of distribution and, at the same time, show a high amount of diversity renders it plausible that Embu and Mbeere are the donors and not the recipients.

The item *to fly* also testifies to this direction of borrowing. The concept of flying is expressed in Central Kenya Bantu by partially divergent forms, all somehow connected to CB *-bùduk- p.s. 43. Since in the relevant word forms, Common Bantu *b is retained, rather than lost (as it is normally the case), borrowing seems likely for all the relevant word forms. In Embu, Mbeere, and Kamba, additionally aberrant word forms are attested. In Embu and Mbeere *-gᴜrᴜka* is used. The substitution of CB *b with /g/ is, according to Guthrie (CB IV: 196), due to spontaneous language change (cited by Möhlig 1974a: 157). The word *-gᴜrᴜka* seems to have been borrowed by all of Kamba from Embu-Mbeere. Kamba speakers have no means of pronouncing either /g/ or /r/. Thus, the form *-gᴜrᴜka* is borrowed by Kamba as *-ᴜlᴜka*, i.e. the first consonant is deleted, the second one replaced with /l/ in a process of adaptation:

(66) 345 to fly *-gᴜrᴜka* Embu, Mbeere ⟶ *-ᴜlᴜka* Kamba

The processes of deleting /g/ and replacing /r/ with /l/ becomes also evident in the analysis of the item *expensive*. All of the languages uphill use the word *gɔrɔ* to express the notion of 'high price' (from Maasai *a-gól* 'to be strong', cf. Tucker & Mpaayei 1955: 249). A few locations in Kamba, especially in the areas of Masaku and Mumoni, borrowed this item as *-ᴜlᴜ*.

(67) 380 expensive Ma. *a-gól* ⟶ *gɔrɔ* Eastern & Western ⟶ *-ᴜlᴜ* Kamba[12]

The same process is found in the treatment of CB *-dég- 'to avoid' C.S. 521: This CB item is realized as *-rɛga* by all of Central Kenya Bantu except for Kamba; it is attested with the following meanings: *148 to refuse, 181 to deny, 185 to forbid*. In all of these three cases, the form *-rɛga* was borrowed by Kamba speakers as *-lɛa*:

12 Mutual borrowing from Maasai may also be the case and cannot be ruled out. If we do, however, assume internal borrowing, the borrowing direction downhill seems most probable: The fact that all of Eastern (including Embu-Mbeere) and Western Kirinyaga show the widespread form *gɔrɔ*, while Kamba shows restricted usage may indicate that the word first spread from Maasai into the varieties near Mount Kenya from where it eventually spread further into Kamba.

(68) 148 to refuse CB *-dég- C.S. 521

The examples (67) and (68) show that it is not always possible to zero in on a specific donor of a particular loanword. In most of these cases, the languages in the foothills of Mount Kenya show little or no variation, while a number of partially divergent forms exist in Kamba. This observation enables us to draw the conclusion that, in these instances, Kamba is the recipient language. It is, however, impossible to say which one of the varieties in the vicinity of Mount Kenya is the donor language. In fact, we cannot rule out that Kamba borrowed the relevant lexical material from more than one of the languages uphill independently.

Under the keyword *tooth*, for example, a total of nine divergent forms is attested[13]. The western dialects, the majority of Kamba as well as most dialects on the southern and eastern slopes of Mount Kenya use a form relating to Common Bantu *-gègò C.S. 802. In Kamba, the Common Bantu item is reflected as *ɪ.ɛɔ*. A few locations in Kamba, however, show irregular forms such as *ɪ.yɛyɔ* or *yɛːyɔ*. It is likely that these forms were borrowed from the languages uphill. As CB *g is generally lost in Kamba, there is no natural way for Kamba speakers to produce the voiced velar approximant /ɣ/. In an attempt to come as close as possible to the pronunciation of this segment (adaptation), some Kamba speakers seem to have substituted /ɣ/ with /y/.

b) External borrowing

A number of aberrant word forms attest to borrowing from languages outside the Central Kenya Bantu group. Swahili has been by far the most influential donor for all Bantu languages in the Kenyan Highlands. There is also a significant amount of Maasai loans to be identified; they are, however, mostly restricted to the northern Meru dialects of Imenti and Nkubu and much lower in number than Swahili loans. In addition, a number of word form show clear signs of borrowing in terms of formal and distributional factors; however, the donor languages in these case remain to be identified. A few items in the lexical data base, moreover, go back to Cushitic stems. There are, additionally, some English loanwords, obviously the most recent loans.

The high Swahili influence reflects the fact that Swahili was not only a language used by precolonial (coastal) merchants but was also important in the context of colonial expansion. Therefore, many of the relevant items denote either commodities generally acquired from coastal traders or concepts introduced by the colonial administration. The majority of external loanwords are discussed in the next section in accordance with the relevant semantic fields. The different types of Swahili loanwords are discussed in section 3.4.2. A detailed review of the extra-linguistic background of Swahili contact is also presented in chapter 4. In the following paragraphs, only such items are discussed that show an usually high level of variation.

Under the keyword *to help*, a total of six word forms is attested, that show either phonological or accumulated divergence and all go back to the Swahili word *-saidia*. While the notion of helping somebody seems to be a rather basic concept, belonging to the core vocabulary, it is not unlikely that word forms such as *-tɛiðia* o r *-tɛðɛɛðya* were introduced through the educational system. The same holds for the concepts *to teach* and *to learn*, which are mostly expressed by Swahili loanwords going back to *-somesha* and *-fundisha*, both literally meaning

13 See synposis *018 tooth* in appendix B for a full overview.

'to cause somebody to learn'. The high amount of diversity among these items suggests that they were introduced by way of parallel borrowing (facilitated by local schools):

(69)	147 to help	Sw. *-saidia*	>	*-tɛːðia, -tɛːðɛːria*	Eastern
			>	*-tɛiðia*	Western
			>	*-tɛðya, -tɛðɛɛsya, -tɛðɛɛðya*	Kamba
			>	*-tɛirɪrɪria*	Murang'a, Gichugu
	156 to teach	Sw. *-somesha*	>	*-ðɔːmɪðia*	Imenti (1), Miutini, Igoji, Nithi, Chuka, Embu, Mbeere, Tharaka, Western
			>	*-sɔmɛðya*	Kamba
			>	*-sɔmɪðya*	Kamba
		Sw. *-fundisha*	>	*-βʊndɪʃa*	Kamba
			>	*-βʊndɪsya*	Kamba
			>	*-βundiðia*	Murang'a

The set up of colonial rule also influenced judicial concepts, such as *175 lawsuit*, *177 judge*, *179 to accuse*, and *187 punish*. In all of these cases, many divergent word forms are attested. In the case of *175 lawsuit*, 23 word forms are listed. Only five of these seem to be genuine, for example the form *ɪ.gamba*, which is used in all dialects on the eastern slopes of Mount Kenya and literally means 'discussion'. With the arrival of the British and the subsequent set up of a colonial state, legal disputes ceased to be a private or family matter in Central Kenya, as local courts were established by the colonial regime. In the course of these events, the Swahili term *mashtaka* ('lawsuit') was introduced and reflected in a number of ways by speakers of the local languages. For example, this word was received as *ðitaːngɔ* in Gikuyu, from where it spread into the other languages in the foothills of Mount Kenya. In Kamba, forms such as *ʊ.sitaka* or *kʊ.sitakwa* were introduced, which also spread as metathesized forms, such as *kʊ.sikata* or *kʊ.sikatwa*. The same process of borrowing from Swahili, i.e. via Gikuyu into the other dialects in the foothills and, independently, from Swahili directly into Kamba, can also be seen in the relevant verb *179 to accuse*. Under the keyword *177 judge*, moreover, parallel borrowing from English is attested. The concepts of *177 judge* and *187 to punish*, additionally, show a large amount of partially divergent word forms in Kamba, whose origin is, however, not entirely clear.

It seems that trading with Swahili merchants has had a major influence on the languages of Central Kenya resulting in the emergence of a number of highly diverse word forms. Among the most obvious cases are concepts such as *200 window*, *225 metal cooking pot*, *247 bottle*, *268 hoe*, *309 fishhook*, and *413 hat*. It is evident in all of these cases that they were introduced through trade. Building houses with glass windows, for example, is a fairly recent innovation in the Kenyan Highlands; hence the relatively large amount of divergent forms, all borrowed from Swahili *dirisha*. As Möhlig (2014: 7) points out, the high variation of the items listed under the keyword *225 metal cooking pot* is due to different waves of Swahili influence (see item *225* in the lexical data of appendix B for a further description of Möhlig's

findings). Most of the items listed under the keywords *247 bottle*, *268 hoe*, *309 fishhook*, and *413 hat* also originate from Swahili.
In the case of *247 bottle*, however, there is the Common Bantu form *-cúpà C.S. 426, constructed by Guthrie with the meaning 'calabash'. Most of the Central Kenya Bantu languages, show forms with a stem-initial /c/, for example *cuba* (Gikuyu) or *mu.cuːba* (Embu). If these words were directly related to Common Bantu, forms such as **ðuɦa* would be expected. Consequently, the relevant word forms above are not inherited from an archaic meta-language but were rather introduced into the Bantu languages around Mount Kenya by parallel borrowing from Swahili. The same holds for the items *268 hoe* and *413 hat*. In the case of *309 fishhook*, again, there exits a relevant form constructed by Guthrie as *-dób- C.S. 638. The fact that a total of eight partially divergent word forms are attested for this item indicates parallel borrowing rather than inheritance. In addition, fishing is a rather uncommon activity in the Kenyan Highlands, rendering borrowing from Swahili *ndoana* rather plausible.
The two items *to open* and *fireplace* show a large amount of similar, yet irregular, forms, whose emergence is only partially due to Swahili influence. The elicitation of the keyword *to open* yields a total of five divergent forms. Most of these show the stem *-PING-* (*-βing-*, *-ving-*, *-ɦing-),* which is irregularly connected to CB *-bángud- C.S. 59a and relatively restricted in distribution. The reason why the Central Kenya Bantu languages diverge from Common Bantu in respect to the beginning of the stem is unclear; however, borrowing may be the case. Some Kamba locations show the forms *-βungʊa* and *-βungwa*, which go back to Swahili *-fungua.*
In the case of *fireplace*, most dialects show forms related to CB *-gíkò C.S. 828. In the Gikuyu-dialect of Nyeri, however, the irregular forms *ðikɔ* and *njikɔ* are attested, increasing the diversity of this item; both go back to Swahili *jiko.*

(70)	202 to open	CB *-bángud- C.S. 59a	≠	*-ɦingʊra*	Igoji (16a), Tharaka (44b), Gikuyu
			≠	*-vingʊra*	Embu, Mbeere
			≠	*-βingʊa*	Kamba
		Sw. *-fungua*	>	*-βungʊa*	Kamba
			>	*-βungwa*	Nyeri (Gikuyu)
	210 fireplace	CB *-gíkò C.S. 828	>	*r.iikɔ*	Western, Eastern except for
			>	*rɪ.iːkɔ*	Tharaka;
			>	*(ɪ).ikɔ*	Kamba
		Sw. *jiko*	>	*yɪ.ikɔ*	Kamba (63, 65, 68)
			>	*ðikɔ*	Nyeri (99)
			>	*njikɔ*	Nyeri (100)

The lexical influence Maasai has had on Central Kenya Bantu is mainly restricted to the northern dialects of Meru. A total of 20 items showing Maasai loans have been identified in the lexical data. Compared to more than 70 items in which Swahili loans occur, the lexical influence by Maasai seems rather low. Only a few items show Maasai loans that are used

beyond the northeastern slopes of Mount Kenya. Accordingly, widespread parallel borrowing from Maasai must be considered an exception rather than the rule. Most Maasai loanwords show restricted distribution as well as little or no variation. Some items, however, seem to have been introduced into all dialects by way of parallel borrowing from Maasai, e.g. *094 to return* and *145 to answer*. In both of these cases, there is a fairly large amount of similar words listed, all of them are borrowed from the Maasai word *a-shúk* 'to give back' (Tucker & Mpaayei 1955: 304), e.g.:

(71)	094 to return	Ma. *a-shúk*	>	*-cɔ:ka*	Meru, Igoji, Nithi, Embu, Tharaka
			>	*-sɔ:ka*	Ndia, Gichugu
			>	*-ciɔ:ka*	Chuka, Embu (32), Mbeere
			>	*-syɔka, -siɔka*	Kamba
			>	*-cɔka*	Gikuyu
			>	*-sɔka*	Murang'a (Gikuyu)

Some items indicate borrowing from Southern Cushitic. In most of the relevant instances, the diversity of these items is much lower than in most of the cases discussed above. Contact with Cushitic speakers has, nevertheless, led to a number of divergent forms in Central Kenya Bantu. The Cushitic item **tsa'ata* 'barren female' (Kießling and Mous 2003: 334), for example, appears as four distinct forms, while Southern Cushitic **gɔndu* (Philippson 2013: 91) 'sheep' has yielded two partially divergent forms. In short, Cushitic loanwords are less diverse in formal terms than loans from Swahili and Maasai.

(72)	131 barren woman	S-Cush. *tsa'ata	>	*mða:ta*	all of Eastern
			>	*ða:ta*	Western
	287 sheep	S-Cush. *gɔndu	>	*ŋɔɔndu*	Meru, Western
			>	*ŋɔndu*	Igoji (16a, b), Nithi, Chuka, Embu, Mbeere, Tharaka

The impact English has had on Central Kenya Bantu is relatively low. In total, 14 items show English loanwords, most of which are highly restricted in distribution, e.g.

(73)	188 dance	Eng. *dance*	>	*ndaci*	Gikuyu: Nyeri (98, 99)
			>	*ndasi*	Kamba: Kitui (56, 68)
			>	*ndanzi*	Kamba: Kitui (69, 72)
	397 mango	Eng. *mango*	>	*i.tunda rıa mangɔ*	Gikuyu: Mathira

In a number of additional cases, relatively high diversity and, in some parts, restricted distribution suggest borrowing. As for none of the relevant items, however, a possible donor within the Kenyan Highlands can be identified, I assume that the relevant source words

originate outside this area or from a language no longer present in the region. The keyword *154 to look at* yields a total of 14 word forms, all of which show limited distribution. According to Möhlig (1974a: 132), this relatively high diversity is due to little usage of this concept. In Kamba, the loans -*lilya* and -*sʊβilya* can be identified under the meaning *to look at*. Possibly, all of the Kamba forms under this keyword showing aberrant shapes and limited distribution are borrowed. A possible donor, however, has not been identified.
Another example of loans whose origin is unknown occurs under the keyword *262 to split firewoord*: For all languages, word forms are attested that related to CB *-yát- C.S. 1946. In Kamba, however, the words -*alia*, -*alya* and -*tilanga* are attested for a few locations. The occurrence of /l/ is considered an aberrance, as this segment is not regularly related to Common Bantu. It is safe to assume that these three forms are loanwords, whose origin, however, can not be specified.

c) Different concepts, specialized forms, low frequency of usage

The previous paragraphs illustrated how we are relatively likely to have identified a loanword, if we find forms that are generally aberrant in shape and restricted in distribution. In many cases, however, a particularly high amount of variation, be it partial or full divergence, may not be due to borrowing. It may rather be the result of different concepts or the usage of specialized forms. Concepts that are, for different reasons, only infrequently used in daily speech may show many different forms under one meaning. In general, we find that one and the same English keyword may be translated by different concepts, depending on the speaker or the particular dialect. There is a number of such cases in the lexical data base, a few examples may suffice to illustrate this.
The keyword *238 to pound* yields a total of 16 different word forms. The most widespread form is -*kima*. Next to this widespread form, a number of more restricted items occur, most of which are also attested under different meanings: In Embu, for example, the form -*ʊːraga* is used, which literally means 'to kill'. Next to this item, the form -*vʊra* is attested for Mbeere, which appears as the regular, but duplicated, form -*ɦʊraɦʊra* in Nyeri. Both forms go back to the meaning *163 to beat*, which is similar to the concept expressed by the prevailing Kamba form -*kuna* (*164 to hit, strike*). Additionally, a few Kamba locations use the forms -*tumba* and -*tumbatumba*, both obviously onomatopoetica. In short, different concepts are used in order to express the notion of pounding, resulting in the relatively high diversity. There is no reason to believe that borrowing has played a role here.
The same holds, of course, for the usage of different nouns. For the keyword *282 cow*, for example, most languages use the form *ŋɔmbɛ (ya) nka* or *ŋɔmbɛ (ya) nga*, respectively, with the literal meaning 'female cattle'. In Gikuyu and some Kamba locations, the more general term *ŋɔmbɛ* is used (without specifying the sex of the animal in question). A few locations in Kamba and Gikuyu, additionally, show the regular words *mɔri* and *mɔi* respectively, both meaning 'heifer', i.e. a cow in milk. This demonstrates that not only different concepts, but also the usage of specific versus generic terms, may result in high variation under a specific keyword.
Some items in the lexical data show high diversity not because there is borrowing involved but rather because some specific concepts are only rarely used in the wider speech community. In general, low frequency seems to result in the occurrence of a variety of word forms. The item *369 to dilute*, for example, denotes a concept which can be expected to be used on a regular basis only by experts, such as smiths. The relevant words are rarely heard among the general public. As a result, the language informants may, in some cases, have a hard time coming up with an appropriate word, as it normally does not belong to their daily speech repertoire. In the case of *369 dilute*, 31 word forms are attested. The majority of these

forms seem to literally denote the notion of diluting. In some instances, however, a more generic term such as *-ðɛʊkya* 'to boil' or the Swahili loan *-yɛyʊkya* (< Sw. *-yeyusha* 'to dilute'**)** are used. At the same time, four informants were not able to provide any answer to the elicitation of this keyword.[14]

There is a number of keywords in the 600-list that may seem to be basic and rather common to the English speaker. They seem, however, not to be commonly used in Central Kenya Bantu. In these cases, most speakers are assumed to have little need of expressing these concepts on a daily basis. For instance, people may be assumed to speak relatively little about small animals like *332 snail*, *331 lizard*, *336 soldier ant* or *340 spider*, as they are, conceivably, generally irrelevant to their daily lives. In other cases, there may be a taboo restriction. In the process of the data elicitation, this becomes obvious when informants are reluctant to translate a keyword such as *314 tail*, as it may sound obscene to the speaker and is deemed inappropriate.

In sum, it is important to note that not every instance of highly diverse word forms is indicative of borrowing (see also section 2.3.1). Before we are safe to assume that relatively high variation and restricted distribution in a specific instance are due to borrowing, we need to rule out – if possible – that a difference in concepts, in the use of generic versus specialized forms, or a taboo restriction are the case.

d) Miscellaneous and inconclusive cases

I argued in the previous paragraph that we must not be misled by a relatively large amount of diversity to always assume language contact to be behind a particular case of high variation. In some cases, variation may be due to other factors, such as the use of different concepts or specialized forms. In a number of cases that show much variation under a specific meaning, however, we can not be exactly sure what caused the diversification of the relevant word forms. The following paragraphs review a number of such cases.

Some items in the lexical data base show a particularly high amount of diversity throughout all of the Bantu family – the Central Kenya Bantu languages being no exception. For the item *tongue*, for example, Guthrie (1967-71) constructed a total of three phonologically divergent forms. Apparently, the words for 'tongue' are so diverse in the test languages investigated by Guthrie, that he was not able to subsume all these forms under one root. In Central Kenya Bantu, a total of seven phonologically divergent word forms exist. This high amount of diversity is, possibly, due to the inheritance of different Common Bantu forms. In other words, the item *tongue* has been rather diverse in Bantu for a long time. The different forms constructed by Guthrie correspond to Central Kenya Bantu as follows:

(74)	017 tongue	CB *-dímè C.S. 571	>	*rʊ.rimɛ*	Miutini, Igoji, Nithi, Chuka, Mbeere, Tharaka
			>	*ʊ.ɪmɛ, w.ɪmɛ*	Kamba
		CB *-dímí C.S. 571	>	*rʊ.rimi*	Embu

14 In English, this verb may also be understood in a number of ways, both literally and in the figurative sense.

CB *-dímị̀ C.S. 572	>	*ᴜ.ɪmɪ*	Kamba
	>	*w.ɪmɪ*	Kamba
	>	*rᴜ.rɪmɪ*	Gikuyu, Ndia, Gichugu
	≠	*rᴜ.ᴜmɛ*	Imenti, Nkubu

Example (74) shows that the relatively high diversity of the items under the keyword *tongue* may be due to the inheritance of slightly different word froms. The only form not regularly related to Common Bantu is *rᴜ.ᴜmɛ*, attested for Imenti and Nkubu (both Meru) – nevertheless, this form is very similar to the ones found in the remaining varieties. In general, there seems to be no reason to assume that external language change has caused the different dialects around Mount Kenya to diversify in regard to the item *tongue*.

In Kamba, the prevailing form is *ᴜ.ɪmɛ*. It is especially widespread in the Masaku area and dominant in terms of distribution. This might be due to vernacular teaching (cf. Mwende 2008: 10). This is, however, the only indication that horizontal language relations, in the sense of homogenization, could have been at play in the spread of this particular form. The exact reason for the generally high diversity of this item in Bantu remains unclear.

Another highly diverse item is *to keep cattle*, which shows a total of eleven distinct words. The prevailing form in the eastern foothills is *-tuga*. In the western dialects of Gikuyu, Ndia, and Gichugu as well as in Kamba, many different forms are used. This high amount of variation is not due to language contact but rather due to the inheritance of different Common Bantu forms. In the west and most parts of Kamba, forms relating to CB *-dí C.S. 550 are used (with a causative extension). In Kamba, additional forms related to CB *-dèd C.S. 310 occur:

(75)	379 to keep cattle	CB *-dí C.S. 550	>	*-riːðia*	Nyeri, Murang'a, Gichugu
			>	*-rɪðia*	Mathira, Ndia
			>	*-rɪːðia*	Nyeri, Kiambu
			>	*-ɪðɪa*	Kamba
			>	*-ɪðya*	Kamba
		CB *-dèd- C.S. 310	>	*-ɛa*	Kamba
			?	*-ɛya*	Kamba (81)
			?	*-ɛɛya*	Kamba (92)
				-tuga	Eastern
				-ɔβa	Kamba (49, 72, 85, 93, 96)
				-kᴜria	Nyeri (100)

In view of their highly restricted distribution and irregular shape, horizontal relations need to be considered for the forms *-ɛya* and *-ɛɛya* in example (75); all other forms listed in (75) are directly related to Common Bantu. The variation between the inherited forms is phonological and concerns only vowel length and vowel quality. There is no reason to believe that this kind

of variation is due to external language change. It seems to be rather due to different ways of reflecting the relevant Common Bantu item (internal language change).
The item *enclosure (for animals)* is another keyword that yields an usually high amount of fully and partially divergent word forms. Out of a total of 17 distinct forms, two can be traced back to Swahili: One locations in Masaku-Kamba shows *bɔma*, which denotes any kind of raised structure in Swahili. In another location in the same area, the Swahili loan *kɪ.βanda* 'bed' is used. In the Gikuyu dialect of Nyeri the concept of 'house' (*ᴜ.ɲɔmba*) and a literal translation of the English keyword *to shut* (*-ɦinga > kɪ.ɦɪngɪrɔ*) are used. All other dialects use a variety of divergent forms. The unusually high amount of variation may indicate borrowing: According to the oral traditions, some communities in the area around Mount Kenya picked up pastoral culture by the time they immigrated into the highlands. From a historical perspective, therefore, borrowing seems to be plausible. However, neither a possible source word nor a donor language can be identified – this case remains largely inconclusive.

(75)	206 enclosure	1.	*nkanata*	(1-12, 15)		Meru, Igoji (15)
		2.	*rᴜ.aga*	(7, 13-25)	Eastern	Miutini (7), Igoji, Nithi
		3.	*rᴜ.a:ga*	(26-30, 40-44)		Chuka, Tharaka
		4.	*rᴜ.aga:*	(31-34)		Embu
		5.	*kɪ.aga:*	(35-39)		Mbeere
		6.	*kɪ.ugu*	(40, 42a)		Tharaka
		7.	*kɪ.ɪgu*	(44a, 44b)		Tharaka
		8.	*kɪ.ugᴜ*	(101-105)		Kiambu, Murang'a, Mathira, Ndia, Gichugu
		9.	*kɪ.ɛgᴜ*	(100)	Western	Nyeri
		10.	*ky.ᴜᴜ*	(50, 53, 55, 56, 57, 62-97)		Kamba
		11.	*nʒa*	(45, 47, 48)		Masaku-Kamba
		12.	*nza*	(50, 54, 59, 61)		Masku-Kamba
	cf. 203 to shut	13.	*kɪ.ɦingɪrɔ*	(98)		Nyeri-Gikuyu
	cf. 197 house	14.	*ᴜ.ɲɔmba*	(99)		Nyeri-Gikuyu
	Sw. boma	15.	*bɔma*	(46)		Masaku-Kamba
		16.	*kɪ.tᴜᴜ*	(49, 51, 58, 60)		Masaku-Kamba
	Sw. *kibanda*	17.	*kɪ.βanda*	(52)		Masaku-Kamba

The two items *name* and *family* also show an usually high amount of diversity – again, the reason behind the large amount of divergent forms remains unclear. In order to express the notion of 'name', all varieties use forms going back to CB *-yɪ́t- 'call' C.S. 2069. The reason why six divergent word forms are used remains unclear.

(76)	105 name	CB *-yi̱t- 'call' C.S. 2069	>	*ri.ɪ:twa*	Eastern
			>	*rɪ.ɪtwa*	Western
				ɪ.syɪtwa	Kamba
				(ɪ.)sɪɪtwa	Masku-Kamba
					(46, 49, 52)
				syɪtwa	Kamba (48, 87)
				nzɪɪtwa	Masaku-Kamba: 50

In the case of *family*, most varieties use similar forms, e.g. *mʊ.cɪɪ* (Nkubu etc.), *mʊ.jɪɪ* (Tharaka etc.) or *mʊ.sɪɪ* (Kamba). None of these forms are regularly related to CB *-gi̱ C.S. 818. The aberrancies shown under this meaning indicate borrowing. The exact historical nature of these items, however, remains to be specified.

(77)	110 family	CB *-gi̱ C.S. 818	≠	mʊ.cɪɪ	Meru, Nyeri (99)
			≠	mʊ.jɪɪ	Igoji, Nithi, Chuka, Embu,
					Mbeere, Tharaka
			≠	mʊ.sɪɪ	Ndia
			≠	mʊ.syɪ	Kamba
			≠	mʊ.sɪɪ	Kamba

In addition, the isolated forms *mbaa* in Masaku-Kamba (46) and *ʊ.kɔɔ* in Kitui-Kamba (62, 71) are attested under the meaning *family*. In the Gikuyu dialects of Nyeri, Murang'a, and Mathira, the circumscription *(andʊ a) ɲʊmba* '(people of) the house' is used to denote this concept.

Finally, the item *nose* shows a total of seven partially divergent word forms, which all seem to go back to CB *-yúdù C.S. 2151. However, we can only speculate why the Common Bantu item has been reflected in so many different ways by the various dialects in Central Kenya:

(78)	011 nose	CB *-yúdù C.S. 2151	ɲʊ:rʊ	Meru, Igoji, Nithi, Tharaka
			ɲʊ:ru	Chuka
			ɪ.ɲʊ:rʊ	Embu (31-33)
			ɪ.ɲʊʊ	Kamba (56, 58, 61-97)
			ɲʊ:rʊ ~ ɪ.ɲʊ:rʊ	Embu (34b), Mbeere
			ɲu:rʊ	Embu (34a+b)
			i.niʊrʊ	Western
			ɪ.nɪ̰ʊʊ	Kamba (45-55, 57, 59, 60)

(3) Semantic Domains

Section 3.1.2 and the above discussion of irregular lexemes showed that formal aberrance as well as marked distribution may be understood as an indication of borrowing. In other words, these two factors enable us to conclude whether a particular word is likely to have been borrowed. In addition, the meaning of a particular word may help us in assessing whether a specific form is a loan or not. If we find an aberrant shape that is restricted in distribution, we might have stumbled upon a loanword. The chances of having identified a loan word are especially high if, in addition, the meaning of this word is known to be prone to borrowing. In most general terms, we can say that meanings connected to the core vocabulary of a language are borrowed to a lesser extent than words generally considered cultural vocabulary. This is something that not only linguists but also any layman would be able to relate to. It is obvious that religious terms, for example, tend to spread more widely through missionary work than, let us say, terms for body parts or emotions.

However, we also find classic cases of core vocabulary that show signs of borrowing, i.e. an irregular shape and restricted distribution. In such instances, as mentioned in section 2.4, we are safe to assume that the meaning of such words are somehow culturally noteworthy (Epps 2015: 586): If a particular word relates to a concept representing a taboo or any other type of social convention, it may be considered cultural vocabulary despite the fact that it denotes, for example, a body part. In other words, the social settings may impact the borrowability of any particular lexeme.

I mentioned in section 2.4 that the item *blood* is an example of a culturally noteworthy concept in Central Kenya Bantu. In some communities, the concept may have been replaced by a Swahili loan because of a taboo restriction on the genuine word. Possibly due to this reason we find the scattered occurrence of the form *ndamu* (< Sw. *damu*) on the eastern slopes of Mount Kenya. In the northern Meru dialects, in contrast, the loan *ðarikɛ* (< Maasai *o-sárgé*; Tucker and Mpaayei 1955: 284) is attested, while most of Central Kenya Bantu shows forms going back to Southern Cushitic **sakamɛ* (Philippson 2013: 85). The oral traditions have it that in pre-colonial times the establishment of 'blood-brotherhoods' preconditioned economic relations (e.g. the exchange of land) between the early Bantu immigrants of Central Kenya and their Nilotic neighbors and, possibly, their Cushitic predecessors in the area (see section 1.2.2).

Conceptual issues may also affect the borrowability of specific words. I mentioned in section 2.4 that Middle English made no distinction between such concepts as 'pork' versus 'pig' prior to contact with Norman French. The fact that Middle English lacked such a conceptual distinction, according to (Epps 2015: 585), gave way to borrowing of the relevant distinctive concepts from French, i.e. terminology for animals on the plate versus the ones in the barnyard. In Central Kenya Bantu, the joints of the human body, for example, are not as conceptually distinct as the two English keywords *elbow* and *anklebone* may imply. The items *ndu* and *kɪ.ru*, for example, occur under the keyword *elbow* in Igoji and a few scattered locations on the eastern slopes – they also denote the concept of 'knee' (cf. Möhlig 1974a: 114). The two concepts are not distinguished by the speakers of these dialects and rather subsumed under the concept 'joint'. Such a lack of distinction may, in some cases, give way to the introduction of loanwords: In the northeastern dialects, i.e. Meru and its southern neighbors, it seems that the genuine words for 'joint of the human body' were replaced by more specific items denoting the concept of *elbow*:

(79) 024 elbow *ndu* 'knee / joint' Igoji, Mwimbi, Muthambi (22, 23)
kɪ.ru 'knee / joint' Muthambi (25), Embu (32), Mbeere (35, 38, 39)

CB *-kókùdà C.S. 1130	*nkankura*	'elbow'	Meru
P-Iraqwoid *gongooxi	*nkɔnkurɔ*	'elbow'	Igoji
P-S-Cush. *konkoolo	*ki.ngɔkɔra*	'elbow'	Embu (33)

Guthrie (1967-71) lists the form CB *-kókùdà C.S. 1130 'ankle'; it is, however, questionable whether this is a valid entry, as Kießling and Mous (2003: 340) reconstruct the form **gongooxi* for Proto-Iraqwoid; the form **konkoolo* is proposed by Ehret (1980: 245) for Proto-Southern-Cushitic. It is evident that forms such as *nkankura* o r *ki.ngɔkɔra* are loanwords in Central Kenya Bantu based on distributional considerations. The reason why they may have been borrowed (from Cushitic) probably lies in the fact that there initially was a need of conceptually distinguishing the different joints of the human body. In this view, it is not the cultural significance of the relevant items that render them relatively likely to be borrowed but rather communicative exigency. In sum, the borrowing of items usually considered core vocabulary may be due to a specific social setting in the relevant speech communities (e.g. a taboo) or communicative factors.

Even though we do find examples of borrowed core vocabulary, in most general terms, we may say that cultural vocabulary is more likely to be borrowed than core vocabulary. In a large-scaled study of loanwords in the world's languages, Haspelmath and Tadmor (2009a) confirm this view. In their study, called the loanword typology project, they claim that religious terms, words relating to clothing and grooming or the house are most likely to be borrowed. In contrast, words relating to sense perception, spatial relations, and the human body show the least likelihood of borrowing. The former domains, 'Religion' and 'Clothing', as Tadmor (2009: 64) points out, correspond to the fields that are typically most affected by intercultural influences, e.g. through religious mission, colonialism, and globalization.

The basis of the loanword typology project is a wordlist consisting of 1,460 lexical meanings compared in a total of 41 individual languages all over the world. These meanings are divided into 22 semantic fields, broadly based on the division in Buck's (1949) *Dictionary of Selected Synonyms in the Principal Indo-European Languages*. This division, as Haspelmath and Tadmor (2009: 6) admit, "is somewhat arbitrary, and alternative groupings are possible and might be preferred by other scholars." In other words, any grouping we may come up with will always be subject to debate among different researchers. In general, there seems to be no other way of arranging any wordlist according to semantic fields other than following one's own intuition.

However, the way the lexical meanings are grouped has, of course, substantial consequences on the outcome of the relevant comparative study. In Haspelmath and Tadmor (2009a), the semantic field labeled 'Motion', for example, belongs to the lower ranks of the loanword typology, i.e. in their sample languages, the domain 'Motion' shows a relatively low amount (17,3%) of loanwords. The percentage of loans in this field is, however, much higher than in the field 'Sense Perception' (11,0%). This is somewhat surprising, as motion clearly is a part of the human condition, not unlike perceiving the physical world with the human senses. The reason for the high percentage of loanwords in the field 'Motion', in turn, seems to be due to a number of items included in the list that can generally be considered technological innovations, e.g. the meanings *road*, *wagon*, *axle*, *canoe*, *outrigger*, *sail*, *anchor* etc. (Haspelmath and Tadmor 2009a: 29). It is not surprising that these words are relatively prone

to borrowing. In Central Kenya, the item *road* is, for example, mainly denoted by a Swahili loan. The vast majority of the items that belong to the field of 'Motion' in our data base, in contrast, relate to Common Bantu. If, in this study, more technical terms, such as the ones mentioned above, were included in this field, possibly, even more loanwords relating to motion would be found.
In general, the loanword typology project provides a reliable guide in assessing the likelihood of borrowability in our lexical data base, even though the grouping of the lexical meanings might be subject to debate. The findings by Haspelmath and Tadmor (2009a) are summarized in the following list:

SEMANTIC FIELD	LOANWORDS AS % OF TOTAL
Religion and belief	41,2
Clothing and grooming	38,6
The house	37,2
Law	34,3
Social and political relations	31,0
Agriculture and vegetation	30,0
Food and drink	29,3
Warfare and hunting	27,9
Possession	27,1
Animals	25,5
Cognition	24,2
Basic actions and technology	23,8
Time	23,2
Speech and language	22,3
Quantity	20,5
Emotions and values	19,9
The physical world	19,8
Motion	17,3
Kinship	15,0
The body	14,2
Spatial relations	14,0
Sense perception	11,0

Table 87: Semantic fields ranked by loanword percentage (Tadmor 2009: 64)

The above semantic fields broadly correspond to the items in Möhlig's 600-wordlist used in this study. This means that the 600-wordlist can be rearranged in such a way as to resemble the groupings proposed by Haspelmath and Tadmor (2009a). It is important to note, however, that one and the same meaning may be considered to belong to more than one semantic domain. In this study, there is a number of such items:

The item *440 land*, for example, belongs to the field 'The Physical World'. It is, however, also included in the domain 'Agriculture and Vegetation'. The same holds for a number of plants that are listed both in the field 'Food and Drink' as well as under 'Agriculture and Vegetation'. The following examples may serve to illustrate that the grouping depends on the cultural context:
The items *400 cassava*, *402 yam*, and *406 maize* are all listed in both fields 'Food and Drink' and 'Agriculture and Vegetation'. They belong to the daily diet in Central Kenyan households and are cultivated locally. The item *403 pepper*, in contrast, is only listed under 'Food and Drink', as it is part of the Central Kenyan cuisine but not cultivated locally. In an environment where pepper is a common crop, the item *403 pepper* should be listed under both 'Agriculture and Vegetation' as well as under 'Food and Drink'.
For the following semantic fields there exist only insufficient or unsuitable data in our lexical data base:

- Spatial relations (6 items)
- Kinship (9 items)
- Emotions and Values (13 items)
- Cognition (5 items)
- Religion and Belief (10 items)

In general, a semantic field that consists of less than a dozen entries seems to yield unsuitable results in the statistical analysis. For this reason, the five domains are excluded from the discussion below. Kinship terms are included in the field 'Social and Political Relations'. Moreover, the field 'Possession', proposed by Haspelmath and Tadmor (2009a), is subsumed in the field 'Basic Actions, Technology, and Commerce' in this study. In the following paragraphs, 16 semantic classes are treated, some of them named slightly differently from Haspelmath and Tadmor (2009a). For each one of the following semantic fields, the dialectometrical result as well as a detailed discussion are provided: It is assessed which forms indicate genetic inheritance and which, in contrast, suggest borrowing. The following semantic classes are discussed:

1. Sense Perception
2. The Body
3. Motion
4. The Physical World
5. Quantity and Quality
6. Communication
7. Time
8. Basic Actions, Technology, and Commerce
9. Animals
10. Warfare and Hunting
11. Food and Drink
12. Agriculture and Vegetation
13. Social and Political Relations
14. Law
15. The House
16. Clothing and Grooming

The treatment of these semantic classes is carried out as follows: First, the dialectometrical result of the relevant semantic field is presented and discussed next to a presentation of all the lexical items reviewed in each field. Second, inherited and diffused material is distinguished from each other according to the guidelines described in section 2.3.2. Thereby, forms originating from Common Bantu or a more recent common meta-language are reviewed as

well as generally aberrant words and forms that show an unsual – or rather: marked – distribution. In many cases, these indicate borrowing, either within Central Kenya Bantu or from languages outside the Kenyan Highlands. Finally, it is assessed for each semantic domain whether it is genetic inheritance or rather language contact that has played the most important role.

1. Sense Perception

The first semantic class to be investigated is the field 'Sense Perception', which is listed at the very bottom of the loanword typology. In this domain, a cross-linguistic average of eleven percent of loanwords has been identified by Haspelmath and Tadmor (2009a), i.e. it shows the lowest borrowability rate of all semantic classes reviewed by the loanword typology project. The Central Kenya Bantu languages generally confirm the view that words relating to sense perception are generally borrowing-resistant. Accordingly, the dialectometrical results for this semantic class show little overlapping between dialects. In fact, most dialects are rather distinct from each other. The outcome of the multidimensional scaling is presented below in figure 30; the field 'Sense Perception' comprises the following 14 lexical items:

055 to be tired	556 to see (CB *-bón- C.S. 164)	596 coldness (inconclusive)
548 smell /	557 to touch (*-kúát- C.S. 1172)	590 black (CB *-yíḍù C.S. 2037)
549 to stink (CB *-nụ̀nk- C.S. 1386,	558 to taste (Ma. *à-ìshám.ìshám*)	591 red
CB *-nụ̀ụ̀k- C.S. 1380)	587 soft	592 white
554 to hear (CB *-yígụ́- C.S. 2043)	594 sweetness (CB *-dio C.S. 554;	
555 noise (Sw. *kelele*)	Sw. *sukari*)	

Table 88: Lexical items reviewed in the field 'Sense Perception'

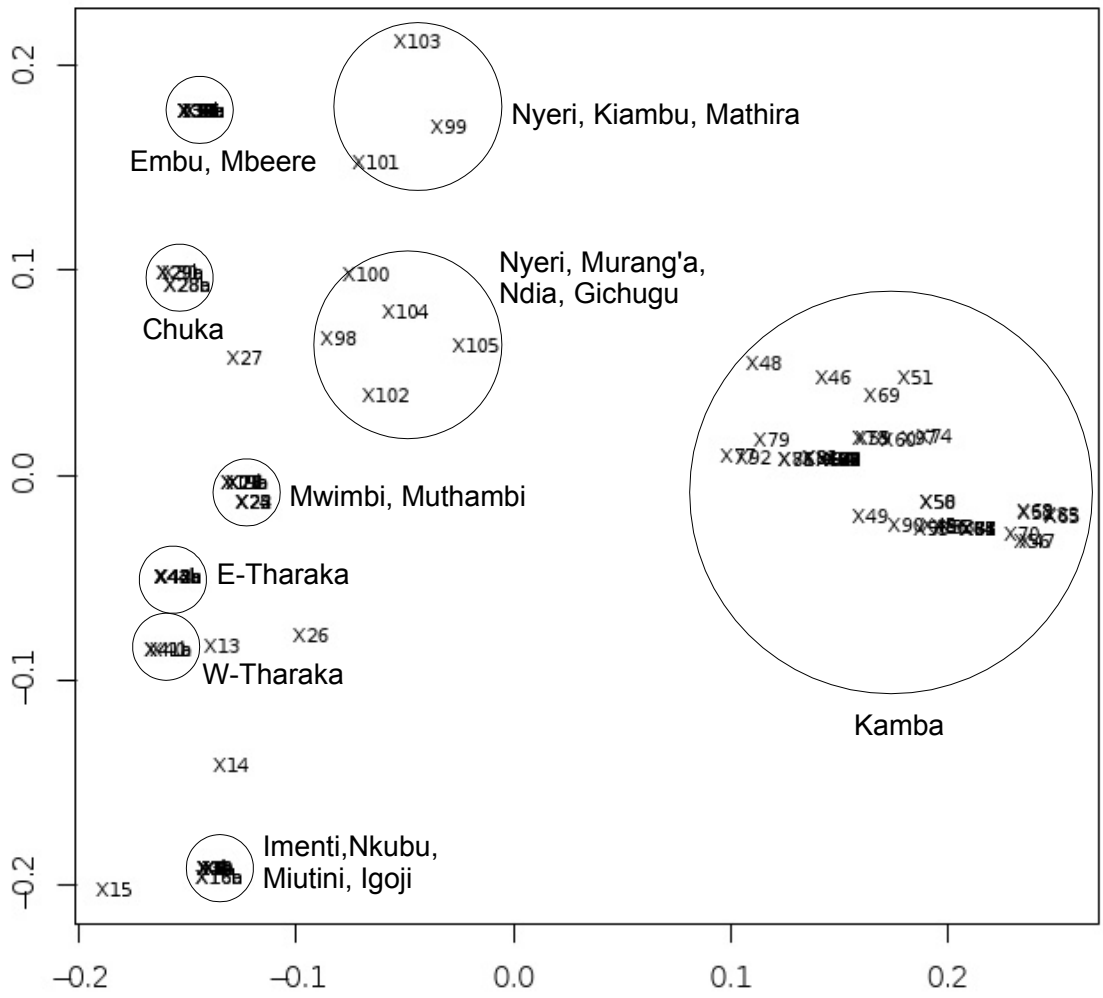


Figure 30: Multidimensional scaling of lexical distances in the field 'Sense Perception'

In contrast to the overall results of the quantitative lexical analysis (see figure 29 in section 3.2.1) showing a general three way-split, figure 30 shows a general two-way split of the Central Kenya Bantu languages:

On the right side of the figure, there is the cluster of the Kamba dialects. All other dialects are displayed in the left part of the picture. All of these varieties seem to be relatively distinct from each other, with the exception of neighboring dialects, that are usually grouped together. Embu and Mbeere are, for example, located in the upper left corner, however, in a considerable distance from their immediate neighbor Chuka. Mwimbi and Muthambi are fairly close to each other. The same holds for the dialects of Meru, i.e. Imenti, Nkubu, Miutini, which are grouped with their southern neighbor Igoji. The fact that the western dialects of Gikuyu, Ndia, and Gichugu are scattered in the upper left corner is due to the fact that there is the least data available for these varieties. A larger amount of data would, presumably, result in a closer grouping of these locations. The picture above makes it evident, however, that in regard to terms relating to sense perception, the Bantu languages of Central Kenya are relatively distinct from each other.

The lexical items in this field may be classified as conservative and less conservative concepts. The former relates to concepts that seem to be archaic, while the latter denotes concepts that seem to be unsteady, i.e. they have been subject to borrowing in at least some dialects. The following three items show no synchronic variation and are, therefore, considered non-diagnostic from a dialectometrical perspective, i.e. they have no impact on the

statistical results due to the lack of variation. They are considered to be conservative concepts:

(80)	055 to be tired	all of CKB	*-nɔ(g)a*	< *-noga
	556 to see	all of CKB	*-ɔna*	< CB *-bón- C.S. 164
	591 red	all of CKB	*-tʊnɛ*	< *-tune

The items *to be tired* and *red* are common to all of Central Kenya Bantu and seem to be archaic based on their widespread distribution and regular shape. The same holds for the item *to see*, which relates to Common Bantu. The remaining 13 items reviewed in this semantic domain show synchronic variation, which results in the relevant lexical distances depicted in figure 30 above.
The separation of Kamba from the remaining varieties is based on a total of seven lexical items. In the following three instances, Kamba seems to be separated from all its neighbors due to linguistic divergence:

(81)	548 smell	(CB *-nu̱u̱k- C.S. 1380)				
	a)	*mʊ.ʊkɛ*, *mʊ.ʊki(a)*	Kamba	vs.	*mʊ.rukɪ*	Meru, Igoji, Tharaka, Western
					mʊ.rukɛ	Nithi, Chuka, Embu, Mbeere
	b)	CB *-nu̱nk- C.S. 1386		>	*mʊ.ɲungɔ*	only in Kamba
				>	*mʊ.nungɔ*	
				>	*ʊ.ɲungu*	
				>	*ʊ.ɲunga*	
	549 to stink	CB *-nu̱nk- C.S. 1386		>		
		-ɲunga	Kamba	vs.	*-nunka*	Chuka, Meru, Tharaka
					-nunga	Embu, Mbeere, Kamba, Gikuyu
	554 to hear	CB *-yi̱gu̱- C.S. 2043		>		
		-iᵍwa	Kamba	vs.	*-iːgwa*	Meru, Igoji
					-ɪːgwa	Nithi, Chuka, Embu, Mbeere, Tharaka
					-igua	Western

In the case of the keyword *smell* in (81) above, Kamba is set apart from all its neighbors based on two factors: On the one hand (a), it is the only language to show the open vowel /ʊ/ in the two forms *mʊ.ʊkɛ* and *mʊ.ʊki(a)*, while the remaining varieties all show /u/. The exact nature of the relation to the relevant Common Bantu item *-nu̯u̯k- C.S. 1380 is unclear; however, we are safe in assuming that the relevant words under the keyword *smell* relate to an archaic concept.

On the other hand (b), Kamba is separated from the remaining varieties by the exclusive use of stems connected to CB *-nu̯nk- C.S. 1386 with the meaning 'smell', the nominalization of the relevant verb. The same Common Bantu item *-nu̯nk- C.S. 1386 relates to the relevant forms listed under the keyword *to stink* in (81) above. In this case, Kamba is distinguished on phonetic grounds, as it exclusively shows the initial palatalization of /n/, while the remaining varieties show a prototypical alveolar realization. Finally, Kamba is set apart from its neighbors in the exclusive use of a bilabial approximant with a velar onset /ᵍw/ in the case of *to hear* (cf. Möhlig 2014: 20 f.). In all of these cases, the differences between Kamba and its neighbors seem to be due to divergence.

In the following case of the keyword *to touch*, Kamba is distinguished from the rest of Central Kenya Bantu based on semantic change. It is the only variety to use a form relating to Common Bantu *-kúát- C.S. 1172 under this meaning – the remaining languages use unrelated items to express the notion of 'touching', while forms relating to Common Bantu *-kúát- C.S. 1172 relate to the concept of 'seizing' in all of Central Kenya:

(82)	557 to touch	CB *-kúát- C.S. 1172	>	*-kwata*	only in Kamba
				(unrelated forms in the rest of CKB)	
	098 to seize[15]	CB *-kúát- C.S. 1172	>	*-gwa:ta*	Meru, Igoji, Nithi, Chuka, Embu, Mbeere
			>	*-kwata*	Kamba

Example (82) shows that in Kamba the Common Bantu item *-kúát- C.S. 1172 must have undergone semantic broadening (cf. Urban 2015): While the relevant forms only denote the concept of seizing in most of Central Kenya Bantu, the Kamba form *-kwata* also relates to the more general concept of touching (semantic generalization).

The above examples (81) and (82) show that Kamba is separated from all its neighbors based on divergence, i.e. internal language change. External language change has additionally distanced Kamba from the remaining varieties:

In the case of *noise*, Kamba shows three loans not attested otherwise. The occurrence of /l/ in the form *kɪ.lɔnzɔ* suggests borrowing (from an unknown donor language). The restricted distribution of the form *w.aʃa* also points towards this conclusion. In the case of *kɛlɛlɛ*, Swahili can be identified as the donor:

(83)	555 noise		*kɪ.lɔnzɔ*	all of Kamba
		Sw. *kelele* >	*kɛlɛlɛ*	Kamba (50, 68, 77-79, 84, 90, 97)
			w.aʃa	Kamba (45, 52, 53, 55, 59, 66, 91)

15 The item *to seize* is included in the semantic field *8. 'Basic Actions, Technology, and Commerce'* (see below).

Under the keyword *soft*, in turn, downhill borrowing from the slopes of Mount Kenya into Kamba is attested. In other words, this keyword decreases the distances between Kamba and its neighbors. However, as this is the only attestation of downhill borrowing, the majority of the items relating to sense perception distance Kamba from its neighbors rather than resulting in convergence – some dialects from the western as well as from the eastern slopes of Mount Kenya are possible donors for the items in the following example:

(84)	587 soft	*-ɔrɔrɔ, mbɔrɔrɔ*	⟶	*-ɔlɔlɔ, mbɔlɔlɔ*
		East: Igoji, Mwimbi,		
		Muthambi;		all of Kamba
		West: Murang'a, Gichugu		

The above discussion shows that Kamba is separated from the remaining varieties mostly based on linguistic divergence – only in the case of *noise* it has been affected by external borrowing not attested otherwise. Divergence is reflected in the fact that Kamba is situated in the right half of figure 30 above, while the eastern and western dialects are situated in the left half of the diagram.

Figure 30 shows that the members of the latter two groups – Eastern and Western – are relatively distinct from each other in regard to lexemes relating to sense perception. The western dialects of Gikuyu as well as Ndia and Gichugu are unique in regard to five lexical items.

In the case of *to hear*, the western dialects show a unique way of reflecting the Common Bantu item *-yį́gų́- C.S. 2043, i.e. with /u/ instead of the approximant /w/:

(85)	554 to hear	CB *-yį́gų́- C.S. 2043 >				
		-igua	Western	vs.	*-iːgwa*	Meru, Igoji
					-ɪːgwa	Nithi, Chuka,
						Embu, Mbeere,
						Tharaka
					-iᵍwa	Kamba

The keyword *to touch*, in turn, is expressed by the form *-ɦutia* in all western dialects, while the remaining dialects show unrelated forms (the occurrence of /b/ in *-bʊrʊria* suggests borrowing*)*:

(86)	557 to touch	*-ɦutia*	Western	vs.	*-tɔnga*	Meru, Igoji, Nithi,
						Tharaka
					-bʊrʊria	Chuka, Embu,
						Mbeere
					-kwata	Kamba

In the case of *soft*, Murang'a and Gichugu agree with some eastern dialects, such as Igoji, in the use of *-ɔrɔrɔ*; one location in Nyeri shows the related form *-rɔrɔa*. The remaining western dialects show unrelated forms that set them apart from the rest of Central Kenya Bantu:

(87)	587 soft	*-ɔrɔrɔ*	Igoji (16a, b), Mwimbi, Muthambi	
			Murang'a (Gikuyu), Gichugu	Western
		-rɔrɔa	Nyeri (98)	
		-ɦʊðʊ	Nyeri (100), Mathira	
		-ɦʊrʊ	Kiambu	

Regarding the two forms *-ɦʊðʊ* and *-ɦʊrʊ* in (87) above, there are, possibly, conceptual issues involved, as the two forms also denote the concept of 'light' (*581 light*). The relatively restricted distribution of these items may also be indicative of borrowing.
Borrowing is also attested under the keyword *sweetness* in Gikuyu. One location in Nyeri shows a Swahili loan, while a Maasai loan is attested for Nyeri, Kiambu, and Mathira:

(88)	549 sweetness	CB *-dío C.S. 554	>	*mʊ.yɔ*	Kamba	
			>	*mʊ.rɪɔ*	Eastern + Murang'a, Ndia, Gichugu	Western
		Sw. *sukari* 'sugar'	>	*ðukari*	Nyeri (98)	
		Ma. *a-isham.isham*	>	*-cama*	Nyeri (100), Kiambu, Mathira	
		(Möhlig 1974a: 181)		cf. *558 to taste*		

There are conceptual issues to be considered in example (88) above: In order to express the notion of sweetness, most dialects use forms relating to Common Bantu *-dío C.S. 554 'food'. One location in Nyeri borrowed the Swahili word for 'sugar', while Nyeri, Kiambu, and Mathira have borrowed a Maasai word also occurring under the keyword *558 to taste*. In short, next to different concepts, borrowing from Swahili and Maasai in this particular case has contributed to the distance between the western dialects and their neighbors. In the case o f *590 black*, moreover, the Gikuyu dialects of Nyeri and Murang'a show an unusual reflection of CB *-yídù C.S. 2037 as *-ira*, additionally separating these dialects from their neighbors.
In sum, it seems that the western dialects are unique in the reflection of Common Bantu *-yígụ- C.S. 2043 (*554 to hear*) and in regard to exclusive innovations in two instances (*557 to touch* and *587 soft*). In respect to the keyword *549 sweetness*, moreover, external borrowing seems to have further distanced these dialects from Kamba and the eastern varieties.
The eastern dialects are, in turn, distinct from Kamba and the western dialects, which is represented by the fact that they are scattered on the left side of figure 30 above, i.e. in considerable distance to Kamba and Western. Bundled isoglosses are difficult to identify in the eastern foothills of Mount Kenya (cf. Möhlig 1974a). The following examples may suffice to illustrate the lack of isogloss bundles in this area:

(89)	a) Shared Innovation			b) Divergence		
	590 black	CB *yį́dù C.S. 2037 > *-iru*		554 to hear	CB *yį́gu̯ C.S. 2043	>
		in Mwimbi and Imenti			***-i**:gwa*	Imenti
					***-ɪ**:gwa*	Mwimbi

Example (89) shows that (a) Imenti and Mwimbi have both reflected Common Bantu *-yį́dù C.S. 2037 in the same way as *-iru*. In another instance (b), under the keyword *to hear*, Imenti and Mwimbi diverge phonologically: the former has reflected CB *-yį́gu̯- C.S. 2043 as *-i:gwa*, while the latter shows *-ɪ:gwa.* I.e., while being identical in respect to *black*, Imenti and Mwimbi show different vowel qualities under the keyword *to hear*.
Even though it is difficult to identify bundled isoglosses, there is a number of instances which separate the eastern dialects from each other accounting for the particular clustering depicted in figure 30 above. The diagram shows that the northern dialects of Meru (Imenti, Nkubu, Miutini) as well as Igoji are grouped together closely while being relatively distant to their neighbors. This is due to divergence in the case of the keyword *to hear* – Imenti, Nkubu, Miutini, and Igoji diverge from all their neighbors:

(90)	554 to hear	CB *-yį́gu̯- C.S. 2043>				
		-i:gwa	Imenti	vs.	*-igua*	Western
			Nkubu		*-ɪ:gwa*	Nithi, Chuka, Embu, Miutini, Mbeere, Tharaka
			Igoji		*-i^{g}wa*	Kamba

In the case of *soft*, again, the northernmost varieties diverge from all neighboring languages, that either show related – yet more complex – forms or unrelated items:

(91)	587 soft	*-ɔrɔ*	Imenti, Nkubu,	vs.	*-ɔrɔrɔ*	Nithi, Murang'a, Gichugu
			Miutini, Igoji		*-ɔlɔlɔ*	Kamba (loan)
					-rɔrɔa	Nyeri (98)
					+ unrelated forms in the rest of CKB	

The keyword *558 to taste*, shows Maasai loans in all of Central Kenya Bantu. In the northern varieties, Maasai *a-isham.isham* is borrowed as *-cɛma*, while Kamba shows *-sama*, and all remaining varieties show *-cama*.
In short, the relatively high distance between the northern varieties of Imenti, Nkubu, Miutini (all Meru) and Igoji versus the remaining languages seems to be due to internal language change (example 90). However, a unique way of borrowing from Maasai (*558 to taste*) has contributed to the distance between the northernmost dialects and all their neighbors.
The varieties of Embu, Mbeere, Chuka, Tharaka, and Mwimbi-Muthambi (Nithi) have not been discussed thus far. These clusters are unique in regard to the item *soft*, which unites Embu-Mbeere with Chuka while separating them from Tharaka as well as Nithi and Meru:

(92)	587 soft	*-ɔrɔ, mbɔrɔ*	Meru: Imenti, Nkubu, Miutini + Igoji
		-ɔrɔrɔ, mbɔrɔrɔ	Nithi: Mwimbi, Muthambi
		-tUtu	Embu, Mbeere, Chuka
		-iɲu, mbiɲu	Tharaka

The fact that bundled isoglosses are difficult to find in the eastern foothills of Mount Kenya prohibits us from identifying more items that show unique forms in each of the relevant clusters of the eastern foothills. However, Embu-Mbeere and Tharaka are both unique in regard to the item *white* in (93) below. According to Möhlig (1974a: 185), the relatively high diversity of the items in the following examples is due to borrowing (from an unknown source). The Embu-Mbeere form *-cɛrU* and the Tharaka item *-yɛru* may be considered aberrant based on the occurrence of /c/ and /y/ respectively:

(93)	592 white	*-ɛrU*	Meru, Chuka, Western
		-ɛU	Kamba
		-ɛru	Igoji, Mwimbi, Muthambi
		-cɛrU	Embu-Mbeere
		-yɛru	Tharaka

The overall statistical result presented in figure 29 (see section 3.2.1) shows a relatively large distance between the western dialects and their closest eastern neighbors Embu-Mbeere and Chuka. The calculations in the semantic field 'Sense Perception', in contrast, show that all these varieties are relatively close to each other in regard to words relating to the human senses (see figure 30 above). Since the western dialects do not share any lexical material exclusively with Embu-Mbeere and Chuka, the relatively low distances between these varieties needs to be considered the result of the sum of all calculations in the field 'Sense Perception'. The same holds for the scattered distribution of the remaining eastern varieties in figure 30 above, representing the absence of bundled isoglosses.
The lexical material in the field 'Sense Perception' may be classified into conservative material and less stable concepts. The following table 89 lists seven items that seem to be conservative in all of Central Kenya Bantu in this field:

055 to be tired (*-noga)	591 red (*-tune)	584 to hear (CB *-yíguⷩ C.S. 2043)
556 to see (CB *-bón- C.S. 164)	548 smell (CB *-nṳ̀nk- C.S. 1386)	
590 black (CB *yídù C.S. 2037)	549 to stink (CB *-nṳ̀ṳ̀k- C.S. 1380)	

Table 89: Stable concepts in the field 'Sense Perception' in all of CKB

The following items in table 90, in turn, may be considered unstable in Kamba, i.e. they have either been affected by borrowing or subject to semantic change:

External borrowing	Internal borrowing	Semantic Change
555 noise (Sw.)	587 soft (downhill)	557 to touch
558 to taste (Ma.)		
592 white		

Table 90: Unstable concepts in the field 'Sense Perception' in Kamba

In the western dialects, the two items *587 soft* and *592 white* seem to have been affected by an unknown external donor. The item *549 sweetness* shows a Swahili loan in Gikuyu, the item *558 to taste* shows a Maasai loan in Western. In the eastern dialects, the two items *592 white* and *558 to taste* (Maasai) have been affected by external borrowing. Embu, Mbeere, and Chuka, additionally, have borrowed the item *557 to touch*.
In sum, the qualitative analysis of the semantic domain 'Sense Perception' reveals a number of divergence and convergence processes that have resulted in the particular lexical distances shown by the quantitative outcome. The following table provides an overview of the different dynamics identified in this field.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	divergence (ex. 81) semantic change (ex. 82)	exclusive contact w/ external donor in Kamba (ex. 85)	---
West vs. Rest	high	divergence (ex. 85)	exclusive contact w/ Swahili and Maasai in Western (ex. 88)	---
Meru-Igoji vs. Rest	high	divergence (ex. 90)	unique way of borrowing from Maasai in Meru and Igoji (*558 to taste*)	---
Embu-Mbeere-Chuka	low	shared innovation (ex. 92)	mutual contact w/ external donor (ex. 86)	---

Table 91: Summary of the qualitative analysis in the field 'Sense Perception'

The following table 92 provides an overview of the statistical background of the semantic domain 'Sense Perception':

Total number of items	14	
Inconclusive cases	1	
	13	
Items affected by borrowing	Kamba:	4 (31%)
Downhill: 1 Swahili: 2 Maasai 1:	Western:	4 (31%)
	Eastern:	3 (23%)
Average borrowability in CKB		**28,3%**
Loanword typology (Tadmor 2009)		11%

Table 92: Domain statistics for the field 'Sense Perception'

2. The Human Body

Body parts terminology is a classic part of the so-called core vocabulary. This domain ranks low in the loanword typology, only 14,2 percent of the words investigated were identified as loanwords by the contributors to Haspelmath and Tadmor (2009a). In this study, the field 'The Human Body' comprises a total of 71 lexical items:

001 body (CB *-bìdì C.S. 112)	(CB *-mócó C.S. 1316)	051 sweat
002 head (CB *-túè C.S. 1808)	026 right hand	(P-S-Cush. **ruʔu* or **ruu'u*)
003 brain	(CB *-díó 'food' C.S. 555)	052 to take a bath
(CB *-bòngó C.S. 169, Sw. *akili*)	027 palm (of hand)	(CB *-càmb- C.S. 267, Ma. *a-él*)
004 hair of head	(CB *-tádà C.S. 1640)	054 to sneeze
(CB *-jʊ́ídí C.S. 967)	028 finger /	055 to be tired
005 forehead /	029 fingernail (CB *-yádá C.S.	056 to sleep
006 face (CB *-cɟú C.S. 347)	1893)	057 to dream /
007 cheek	030 back of body	058 the dream
008 jaw	(CB *-gongo C.S. 858)	(CB *-dóót- C.S. 672)
009 chin / 010 beard	031 ribs (CB *-bàdʊ̀ C.S. 30)	059 to snore
(CB *-dèdʊ̀ C.S. 520)	032 chest	060 blind
011 nose (inconclusive)	033 breasts	063 sickness /
012 eye (CB *-yɟcòdɟ C.S. 2031)	036 foot, leg (CB *-gùdù C.S. 884)	064 to fall ill (CB *-dúád- C.S. 667)
014 ear (CB *-kùtú C.S. 1243)	037 anklebone (see *024 elbow*)	065 fever, cold (Sw. *homa*)
015 mouth (CB *-nʊ̀à C.S. 1379)	038 heel (CB *-téndé C.S. 1731)	066 to shiver (CB *-tètim- 1276)
016 lip (CB *-dòmò C.S. 651)	039 skin (Sw. *ngozi*)	067 to vomit (CB *-tápik- C.S. 1684)
017 tongue (inconclusive)	040 flesh (CB *-yàmà C.S. 1909)	068 to cough (CB *-kóód- C.S.
018 tooth (CB *-gègò C.S. 802)	041 bone (CB *-píndí C.S. 1526)	1108)
019 throat (CB *-mèdò C.S. 1295)	042 vein (CB *-kɟpà C.S. 1087)	069 wound (CB *-dòndà C.S. 656)
020 neck (CB *-kɨŋgò C.S. 1086)	043 blood (Sw. *damu*, Ma. *o-sárgé* ,	070 to swell (CB *-bɟmb- C.S. 144)
021 shoulder (CB *-tʊ́ʊ́dɟ C.S. 1862)	P-S-Cush. *sakamɛ*)	073 blister (Ma. *a-toyú*)
022 arm (CB *-bókò C.S. 158,	044 intestines (CB *-dà C.S. 442)	074 scar
CB *-yádá 'C.S. 1893)	045 heart (CB *-kódò C.S. 115)	075 to cure (inconclusive)
023 armpit	046 lungs	076 medicine (Sw. *dawa*)
(CB *-kúàpà C.S. 1171, Sw. *kwapa*)	047 to breathe	077 to give birth
024 elbow	(CB *-pèèp- C.S. 1489)	(CB *-bɟad- C.S. 136)
(CB *-kókùdà C.S. 1130, Cush.	048 liver (CB *-tímà C.S. 1739)	134 voice (Sw. *sauti*)
*konkoolo)	049 kidney (CB *-pɟgo C.S. 1549)	547 fatigue
025 left hand	050 saliva (CB *-tá C.S. 1629)	

Table 93: Lexical items reviewed in the field 'The Human Body'

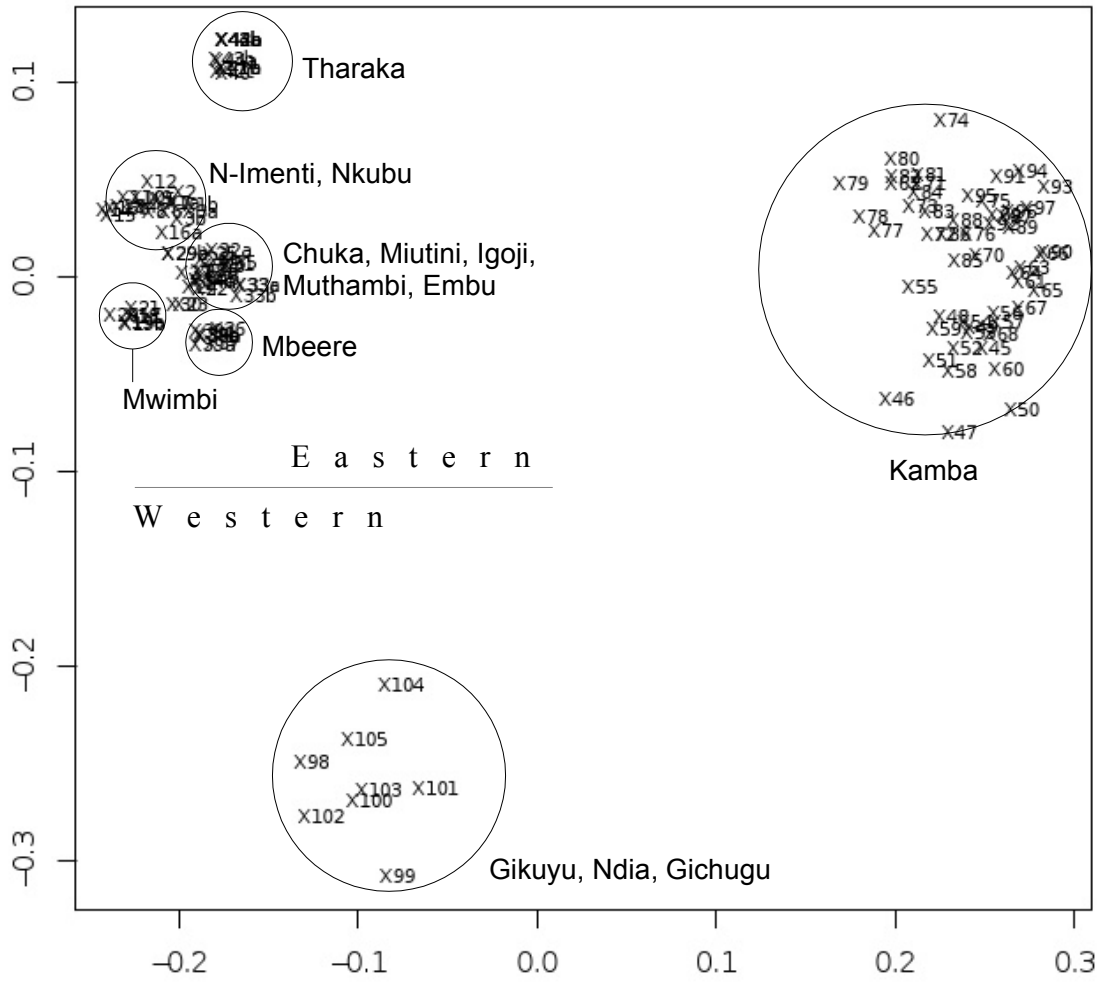


Figure 31: Multidimensional scaling of the lexical distances in the field 'The Body'

In figure 31, the western dialects of Gikuyu, Ndia, and Gichugu are situated at the bottom, while the Kamba cluster is located on the right side of the picture. All of the remaining varieties are grouped together in the upper left corner, with Tharaka being considerably distant to its neighbors in the eastern foothills of Mount Kenya.

Insofar the above picture resembles the three-way split shown by the overall dialectometrical result in figure 29 (see section 3.2.1). However, in contrast to the overall result, according to which Embu and Mbeere are somewhat intermediate between their eastern and western neighbors, in regard to body parts terminology, the two varieties are most closely affiliated with the dialects on the eastern slopes of Mount Kenya.

In a total of eleven instances, all varieties exclusively use regular forms. They are treated as identical in the quantitative lexical analysis, as the formal differences described in (94) below are taken into account in the phono-dialectometrical analysis. In other words, these items do not affect the outcome of the lexical calculations. All of the following forms relate to Common Bantu – with the exception of *to be tired*:

(94)	014 ear	*gU.tU / kU.tU*	< CB *-kùtú C.S. 1243
	020 neck	*ngingɔ / nkingɔ*	< CB *-kiŋgò C.S. 1086
	040 flesh	*ɲama*	< CB *-yàmà C.S. 1909

045 heart	*ngɔ(r)ɔ / nkɔrɔ*	< CB *-kódò C.S. 115
049 kidney	*mbi(g)ɔ / mpigɔ*	< CB *-píɟgo C.S. 1549
050 saliva	*ma.ta*	< CB *-tá C.S. 1629
055 to be tired	*-nɔ(g)a*	< *-nog-
057 to dream	*-(r)ɔːta*	< CB *-dóót- C.S. 672
067 to vomit	*-taɦika / -taβika*	< CB *-tápik- C.S. 1684
072 to swell	*-imba*	< CB *-bíɟmb- C.S. 144
077 to give birth	*-jiaːra / -syaa*	< CB *-bíɟad- C.S. 136

There is not a single instance among the lexical material reviewed in this semantic domain that would on its own attest to the three-way split depicted in figure 31 above. Consequently, this particular division of Central Kenya Bantu is based on the sum result of the lexical calculations in this domain. We find a number of items that unite the eastern and western dialects while separating the two from Kamba. In contrast, we also find items that unite Kamba with the western dialects, while the remaining varieties diverge. A few examples may suffice to illustrate the fact that isoglosses do not generally bundle in this domain:

(95) East & West versus Kamba

008 jaw	CB *-cɟú C.S. 347				
	rU.ðɪa	East & West	vs.	*U.kambuu*	Kamba
069 wound	CB *-dòndà C.S. 656				
	kɪ.rɔnda	East & West	vs.	*kɪ.tau*	Kamba

In both of the above cases in (95), only the eastern and western dialects show the retention of the relevant Common Bantu item, while Kamba shows unrelated – yet genuine – forms, i.e. innovations. In the following two cases, Kamba agrees with the western dialects, while the eastern varieties diverge:

(96) Kamba & West versus East

001 body		CB *-bìdì C.S. 112			
	mw.ɪ(r)ɪ	Kamba & West	vs.	*mU.ɪːrɪ, mU.ɪːri*	East
056 to sleep					
	-kɔma	Kamba & West	vs.	*-maːma*	East

In the case of *body* in (96), all of Central Kenya Bantu relates to Common Bantu. Kamba and the western dialects show the forms *mw.ɪrɪ (*West) and *mw.ɪɪ* (Kamba), respectively (treated as identical according to the series *R_1 discussed in section 3.1.2); the remaining varieties diverge in vowel quality and vowel length. Under the keyword *to sleep*, the form attested for Kamba and the western dialects is unrelated to the form shown by the eastern dialects.
The affiliation of Kamba with its neighbors on the eastern slopes of Mount Kenya is shown by the following two items in (97). In the case of *shoulder*, Kamba and the eastern dialects have retained the relevant Common Bantu form, while the western dialects show fully

divergent forms. The same holds for the item *skin*; in that case, however, most western dialects seem to have lost the genuine form by replacing it with a Swahili loanword:

(97) Kamba & East versus West[16]

021 shoulder	CB *-tʊ́ʊ́dị C.S. 1862				
	kɪ.tuɔ	Kamba	vs.	*kɪ.andɛ*	West
	gɪ.turɔ	East		*cɪ.andɛ*	West
039 skin					
	gɪ.kɔndɛ	East	vs.	*rʊa*	Gichugu (105)
	kɪ.kɔndɛ	Kamba		*ngɔðɪ*	rest of West

The form *rʊa* shown under the keyword *skin* in (97) seems to be the genuine Gikuyu form. It is documented by Benson (1964). Similar forms, such as *kɪ.lʊa*, are attested in Kamba in highly restricted distribution, suggesting that they were borrowed from the western dialects. Presumably, *rʊa* was eventually replaced by the Swahili loan *ngɔðɪ* (< Sw. *ngozi*) in Gikuyu etc. – nevertheless, the example of *skin* attests to the fact that Kamba and Eastern are united in this respect, whereas the western dialects diverge by showing unrelated forms.
Except for the instance of Swahili contact under the keyword *skin* in (97), all of the above examples seem to attest to linguistic divergence. Most of the above examples show full divergence, i.e. one group shows a specific item whereas the other shows an unrelated form. The emergence of these specific innovations seems to be due to internal language change. There is also a number of cases that show divergence based on a difference in concepts as well as semantic change:
The terms relating to the left and the right hand show different concepts: The term *left hand* is expressed by forms relating to the relevant Common Bantu item; in Kamba, an additional concept is used denoting the 'female side':

(98)	025 left hand	CB *-mócó C.S. 1316 'left'	>	*ʊ.mɔðɔ*	all of Eastern
			>	*kɪ.mɔðɔ*	Miutini (9), Tharaka (41-44), Kamba
		CB *-ká C.S. 970 'wife'	>	*kwa aka*	Kamba

The concept of *right hand* is, accordingly, expressed by the notion of the 'male side' in some of Kamba. Most varieties show, however, a concept connected to the notion of 'food', i.e. the hand used to eat with:

16 The forms listed for Kamba and the eastern dialects in (97) are treated as regular / identical based on the series *K_3 attesting to the fact that Dahl's Law is absent in Kamba. Kamba /Ø/versus East /r/ is represented by the series *R_1 (see section 3.1.2)

(99)	026 right hand	CB *-dúmè C.S. 697 'male'	>	*-a.ʊmɛ*	Kamba: Kitui, Mumoni
		CB *-díó C.S. 555 'food'	>	*ʊ.rɪɔ*	East & West (additionally borrowed into Kamba as *ʊ.lyɔ*[17])

The following examples show, in turn, that the dialects of Central Kenya Bantu seem to have given various connotations to different Common Bantu forms. The following two examples show semantic generalization (Urban 2015), i.e. some dialects have given the relevant Common Bantu item a broader meaning than the one listed by Guthrie (1967-71): The eastern dialects have extended the meaning of the Common Bantu form for *finger* to the meaning *arm*; Kamba uses the notion of *shivering* to describe the concept of *fever*. In addition, some locations in Kamba show terms originally relating to specific diseases under the general keywords *fever, cold* (cf. Möhlig 2014):

(100)	022 arm	*njara*	Eastern	<	CB *-yádá C.S. 1893 'finger'
		gʊ.ɔkɔ	Western	<	CB *-bókò C.S. 158 'arm'
		kʊ.ɔkɔ, kw.ɔkɔ	Kamba	<	CB *-bókò C.S. 158 'arm'
	065 fever	*ndɛtɛma*	Kamba	<	CB *-tètim- 1276 'to shiver'
	also Kamba: *ɪ.kua* 'cough', *kɪ.vuti* 'pneumonia', *kɪ.ðʊi* 'chest' as 'fever, cold'				

Semantic differences are also shown by another set of items: There are three concepts relating to specific parts of the human head – *forehead*, *cheek*, and *jaw* – that all show forms connected to the Common Bantu form *-cɧú C.S. 347, for which Guthrie (1967-71) provides the meaning 'face':

(101)	CB *-cɧú C.S. 347 'face'	>	006 face	*ʊ.ðiʊ*	Eastern, Western	all of CKB
				ʊ.ðyʊ	Kamba	
		>	005 forehead	*ʊ.ðiʊ*	Nkubu (3, 6), Igoji (15, 16), Nithi, Chuka (27, 28), Embu (32-34), Mbeere (36-39), Murang'a	
				ʊ.ðyʊ	Kamba	
		>	007 cheek	*rʊ.ðɪa*	Mwimbi, Embu, Mbeere, Tharaka, Gichugu	
		>	008 jaw	*rʊ.ðɪa*	Eastern, Western	

17 The borrowing of the concept *food* downhill into Kamba seems to be prestige-motivated, as in the context of the keyword *right* hand, the CB form *-díó C.S. 555 'food' relates to a social convention of eating with the right hand (cf. Swahili *mkono wa kulia*).

The above examples in (101) show that some dialects seem to not differentiate between the general concept of 'face' and more specific parts of the human head. A lack of distinction in anatomical terminology is also shown under the keyword *029 fingernail*: All eastern dialects show the genuine form *rU.kuɲU* to denote this concept (a few locations of Kamba seem to have borrowed it from their eastern neighbors). The majority of Kamba and all western dialects, in contrast, use items, such as *w.aa* (Kamba) and *rU.ara* (Western) relating to Common Bantu CB *-yádá C.S. 1893 'finger'.

In the case of *fingernail* and the ones listed in (101) above, it seems that we deal with a general lack of distinction rather than semantic change in the sense of narrowing (specialization). The latter is defined by Urban (2015: 374) as a change that involves a restriction of the denotational range of a lexical item, e.g. English *meat* going back to Old English *mete* 'food'. In the above cases in (101), however, the relevant forms do not show a restricted denotational range but rather a relatively broad range of meanings, i.e. general as well as specific denotations. Lack of anatomical distinction is also attested to by the items relating to the joints of the human body, such as *024 elbow* and *037 anklebone*. It seems that a lack of semantic distinction may give way to borrowing. The following paragraphs deal with these two cases and a number of additional instances of language contact in Central Kenya Bantu in this semantic domain.

The keywords *elbow* and *ankelbone* both show an unusually high amount of divergent items. In the case of *elbow*, we find a total of 15 distinct forms. In Igoji, Mwimbi, and a few additional locations in the eastern foothills, the term *elbow* is expressed by a general concept relating to 'joint of the human body', e.g. 'knee' (cf. Möhlig 1974a: 114). In addition, a few eastern locations show the unrelated forms *ndugɛ* (Muthambi 23, 34; Chuka 29, 30) and *nkɔngɔ* (Embu 31, 34; Mbeere 36, 39), whose origin is unclear. The vast majority of dialects use forms relating to Common Bantu *-kókùdà C.S. 1130. However, this item constructed by Guthrie (1967-71) seems to be poorly reliable in genealogical terms (cf. Bastin et al. 2002). It seems more likely that the relevant forms go back to Southern Cushitic. Insofar, the majority of Central Kenya Bantu attests to external borrowing in this case. Borrowing seems to be likely based on the high amount of diversity and the partially restricted distribution of the following items:

(102) 024 elbow
Proto-Southern-Cushitic *konkoolo (Ehret 1980: 245)
Proto-Iraqwoid *gongooxi (Kießling and Mous 2003: 340)
> *nkankura* Meru
> *nkɔnkura* Imenti (1a), Miutini (12)
> *nkɔnkurɔ* Miutini (7-11)
> *ki.ngɔkɔra* Embu (33)
> *nga:kura* Tharaka
> *kɪ.kɔkɔa* Kamba
> *(kɪ.)ngɔkɔa* Kamba
> *kɪ.gɔkɔra* Western
> *ngɔkɔl(y)a* Kamba

Under the keyword *anklebone*, 21 distinct forms are attested. The high amount of diversity points towards borrowing. A few Kamba locations show forms similar to the ones listed in

(102) above suggesting that no distinction between *ankle* and *elbow* is made by the relevant speakers. The majority of dialects seem to have borrowed from an unknown source:

(103) 037 anklebone

1.	*ncʊŋʊrʊ, ncaŋʊrʊ*	A_1	Nkubu, Igoji
2.	*ncuŋirʊ*	A_2	Igoji (13-15)
3.	*ncu:girʊ*	A_3	Chuka (27) + 26
4.	*ga.cu:girʊ*	A_4	Muthambi
5.	*ncʊŋwa*	B_1	Mwimbi, Chuka
6.	*(n)ðʊŋwa*	B_2	Embu, Mbeere, Nyeri, Kiambu
7.	*nðʊŋʊðʊŋʊ*	B_3	Imenti (1, 2), Nkubu (6)
8.	*a.ðʊŋwa*	B_4	Murang'a, Gichugu
9.	*ka.ðʊŋwa*	B_5	Ndia
10.	*ndʊgicʊ*	C	Tharaka
11.	*ngʊlimʊ*	D_1	Kamba
12.	*ngʊlimɔ*	D_2	Kamba
13.	*ngɔkɔɔla*	E_1	Kamba (72, 86)
14.	*ngɔkɔa*	E_2	Kamba (52)
15.	*ngʊngʊlya*	F_1	Kamba (73, 82, 84)
16.	*ngʊngʊlwa*	F_2	Kamba (70, 85)
17.	*ngʊngʊlʊ*	F_3	Kamba (83)
18.	*gɪ.kɔgɔra*	F_4	Nyeri (99)
19.	*ndalʊ*	G	Kamba (74, 91)
20.	*ngangasu*	H	Kamba
21.	*ngaðʊmʊri*	J	Nyeri (100)

cf. *024 elbow*

The list in (103) above shows that Tharaka uses a form *ndʊgicʊ* labeled C. Möhlig (1974a: 116) argues that this is a case of metathesis: If the two consonants C_1 and C_3 of *ndʊgicʊ* were switched around and the pre-nasalization of class 9 is taken into account, we would end up with a reconstructed form **-cʊgirʊ*, which relates to the forms under the label A, such as *ncu:girʊ* or *ga.cu:girʊ*. This instance of metathesis distances Tharaka from its neighbors[19] (cf. figure 31 above). The Tharaka form C may, however, originate from the same donor language as the loans labeled A. In sum, external borrowing seems to have had a major influence in regard to the concept of *anklebone*.

In the case of *armpit*, external borrowing is attested as well; in addition, downhill borrowing is shown under this keyword. Most of the relevant forms, however, seem to go back to Swahili. It is less likely that all forms under A and B in (104) below relate to Common Bantu

19 The keyword *060 blind*, additionally, distances Tharaka from its neighbors. In that case, Tharaka seems to show the unique innovation *ntʊngi*, while all remaining varieties attest to the root *-tumu:mu*.

*-kúàpà C.S. 1171 – a regular relation would be expected to yield forms such as **nkuaɦa* or **nguaɦa* in the eastern dialects:

(104)	023 armpit	Sw. *kwapa*	>	1.	*nkua:*	A_1	Meru, Igoji
			>	2.	*nkɔ:a*	A_2	Nithi
			>	3.	*nkuɔ:ba*	A_3	Chuka
			>	4.	*nga:bua*	A_4	Embu, Mbeere
			>	5.	*nkɔ:a:*	A_5	Tharaka
			>	6.	*nzakwaðа*	B_1	Kamba
			>	7.	*nʒwakwaβa*	B_2	Kamba (Masaku: 45, 47)
			>	8.	*nzakwaβa*	B_3	Kamba
			>	9.	*ndakwaða*	B_4	Kamba (Kitui: 73,74)
				10.	*nzakilya*	C	Kamba
				11.	*nzɛkɛnʒa*	D_1	Kamba (Masaku: 54)
				12.	*nzɛkɛtʃa*	D_2	Kamba (Masaku: 48, 50)
				13.	*nzɛkɛʃa*	D_3	Kamba (Masaku: 51, 53)
				14a.	*nʒɛgɛkɛ*	D_4	Western (borrowed by Masaku-Kamba)
				14b.	*nzɛkɛkɛ*	D_4	Kamba (Masaku: 52)

All of the forms labeled as A and B in (104) above seem to go back to Swahili *kwapa*. The occurrence of /l/ in the Kamba form C indicates that it is a loan as well. The forms labeled as D are restricted in distribution in Kamba. In the case of *nʒɛgɛkɛ* (D_4), one location in Masaku-Kamba seems to have borrowed the genuine western form and even copied Dahl's Law in this instance, while another location in Masaku shows the related form *nzɛkɛkɛ* (also D_4), probably borrowed as well – however, integrated into the Kamba system by not obeying Dahl's Law and using the genuine Kamba phoneme /nz/.

The item *heel*, again, shows an unusually high amount of diversity, i.e. thirteen distinct forms – external borrowing seems likely for many dialects. However, the possible donor languages remain unclear. A lack of distinction in regard to body parts is also shown by this particular keyword in Chuka as well as the Gikuyu dialects of Nyeri and Kiambu:

(105) 038 heel CB *-téndé C.S. 1731

1.	*gɪ.tɛndɛ*	A	Imenti (1, 2), Miutini, Igoji (14), Nithi, Embu, Mbeere, Tharaka, Nyeri (100), Murang'a, Gichugu
2.	*gɪ.takinɔ*	B_1	Nkubu
3.	*ga.taginɔ*	B_2	Miutini (12), Igoji (13, 15)
4.	*kɪ.taiɲɔ*	B_3	Kamba
5.	*kɪ.taɲɔ*	B_4	Kamba (74, 75, 85)
6.	*mU.taŋi*	C	Igoji (16a, 16b)
7.	*kɪ.ðuðɪ*	D	26
8.	*ncUgirU*	E	Chuka (cf. *037 anklebone*)
9.	*kɪ.tiinɔ*	F_1	Kamba
10.	*kɪ.tiiɲɔ*	F_2	Kamba
11.	*kɪ.tiiɲU*	F_3	Kamba (62, 71)
12.	*kɪ.taiɲɔ*	F_4	65, 66, 69-73, 77-79, 82-84, 91
13.	*ðUŋwa*	G	Nyeri, Kiambu (cf. *037 anklebone*)

The only form in (105) related to Common Bantu is *gɪ.tɛndɛ* (A), showing the most widespread usage. The restricted distribution and the relatively high diversity of the remaining items suggest borrowing. The two forms C and G also occur under the keyword *anklebone* and seem to be transferred horizontally into Chuka and Nyeri as well as Kiambu, respectively. The donor languages remain to be specified in these cases.
In respect to external borrowing (from unknown sources), Kamba seems to have been affected most severely. The following items are considered loanwords in Kamba based on their aberrant shape showing /l/:

(106) External loanwords in Kamba

003 brain	*kɪ.lɪkɔ*
005 forehead / 006 face	*kɪ.tUlya, ndUlya / tUlya*
009 chin	*ngɔlu*
019 throat	*mU.lUkU, ɪ.lUkU*
027 palm of hand	*kɪ.tala, kɪ.talawa*
037 anklebone	*ndalU; ngUlimɔ, ngUlimU*
060 blind	*kɪ.lalinda, kɪ.lilinda*

066 to shiver	*-ðɪːlɪa, -ðɪːlɻa, -ðɪːlɪla, -lɪlɪa*	
074 scar	*ɪ.langa*	

The varieties located more closely to Mount Kenya are, in contrast, less affected by external contact. The following items are considered loans in the eastern and western dialects based on their highly restricted distribution and – in some cases – aberrant shapes:

(106)	005 forehead	*ntɔŋɔ*	three locations in Imenti and Nkubu
	031 ribs	*rᴜ.baru*	Nyeri (100), Kiambu, Mathira, Ndia (≠ CB *-bàdù C.S. 30; cf. CB *b > /Ø/ in CKB)
	032 chest	*kɪ.bara*	Imenti, Nkubu, Miutini, Igoji
	059 to snore	*-ŋɔrɔt(i)a*	Embu, Mbeere, Muthambi
	063 sickness	*mbaːjᴜa, ᴜ.aːjᴜa*	four locations in Imenti and Miutini

Swahili, Maasai, and Southern Cushitic seem to have had a substantial impact regarding the number of affected ites – the relevant loanwords are, however, mostly restricted in distribution, i.e. each occurring in only a few dialects:

(107) **a. Swahili loanwords**

003 brain	Sw. *akili*	> *akiri*	Kiambu, Murang'a
		> *akili*	Kamba
039 skin	Sw. *ngozi*	> *ngɔði*	Gikuyu, Ndia
		> *ngɔsi*	Kamba
023 armpit	Sw. *kwapa*	> *nkuɔːba*	Chuka
		> *ngaːbua*	Embu, Mbeere
		> *etc.*	
043 blood	Sw. *damu*	> *ndamu*	Imenti, Nkubu
048 liver	Sw. *ini*	> *ini*	Gikuyu, Ndia, Gichugu
076 medicine	Sw. *dawa*	> *ndaːwa*	East, West
		> *ndawa*	Kamba
065 fever	Sw. *homa*	> *ɦɔːma*	Embu, Gikuyu, Ndia, Gichugu
134 voice	Sw. *sauti*	> *ðauti*	Nyeri, Murang'a

b. Maasai loanwords (cf. Möhlig 1974a)

043 blood	Ma. *o-sárgé*	> *ðarikɛ*	Imenti, Nkubu
052 to bathe	Ma. *a-él*	> *-ɪːria*	Imenti, Nkubu
		> *-ɪːcɪːria*	Tharaka
073 blister	Ma. *a-toyú*	> *gɪ.tɔːyɔ*	Igoji, Mwimbi, Muthambi
		> *gU.tɔːya*	Chuka, Embu, Mbeere, Tharaka

c. Southern Cushitic loanwords (cf. Ehret 1980; Philippson 2013)

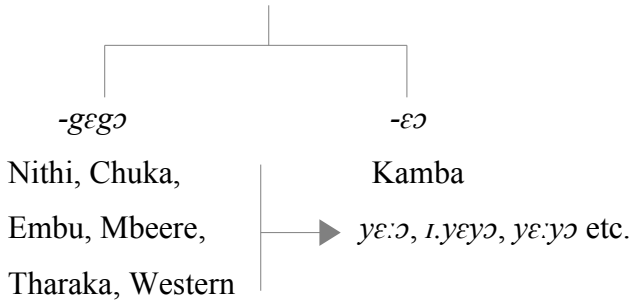
024 elbow	Cu. **konkoolo*	> *nkankura*	Imenti, Nkubu
		> *ngɔkɔla*	Kamba
		> *etc.*	
037 anklebone	Cu. **konkoolo*	> *ngɔkɔɔla*	Kamba
		> *etc.*	
043 blood	Cu. **sakamɛ*	> *(n)ðakamɛ*	Gikuyu, Kamba
051 sweat	Cu. **ruu'u*	> *rU.Ua*	Imenti
		> *rU.Uya*	Igoji

The extent of internal borrowing is relatively low in comparison with borrowing from outside languages. The following four cases attest to downhill borrowing, i.e. from the foothills of Mount Kenya into the lower plains of Kamba:

(108)	**Mt. Kenya**		**Kamba**
016 lip	*kɪ.rɔmɔ*	>	*kɪ.lɔmɔ*
026 right hand	*U.rɪɔ*	>	*U.lyɔ*
039 skin	*rUa*	>	*kɪ.lUa, ka.lUa*
059 snoring	*-ŋɔrɔta*	>	*-ŋɔlɔta*

In addition, Kamba shows multiple partially divergent forms under the keyword *tooth* next to one regular form. In this instance, all varieties show forms relating to Common Bantu *-gègò C.S. 802. Kamba seems to have additionally borrowed from its neighbors on the slopes of Mount Kenya:

(109) 018 tooth CB *-gègò C.S. 802



One case under the keyword *to breathe* describes the opposite borrowing direction, i.e. uphill from Kamba into the eastern dialects:

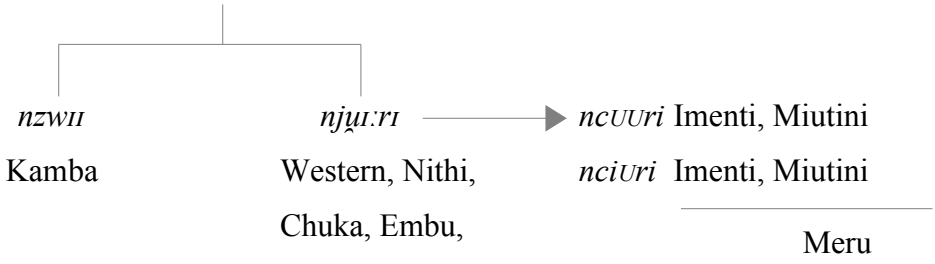
(110) 047 to breathe CB *-pèèp- C.S. 1489 > -*bɛːba* → -*bɛːba* Muthambi, Chuka, Embu, Mbeere, Tharaka

Kamba

In the above case of (110), it is evident that the relevant eastern dialects have borrowed the form -*bɛːba* from Kamba. In Kamba, the word -*bɛːba* is considered regular as it relates to Common Bantu *-pèèp- C.S. 1489 (cf. series *P_1 in section 3.1.2 attesting to CB *p > /b/ in Kamba). If the eastern dialects had also retained this item, we could expect to find the form **ɦɛːɦa* according to the correspondence series *P_1.

Montane borrowing, i.e. lexical diffusion among the dialects on the slopes of Mount Kenya, is attested to by the item *hair*. In this case, Kamba, all western and some eastern dialects show regular forms, while aberrant shapes are attested for the northernmost varieties of Central Kenya Bantu:

(111) 004 hair CB *-jʊ́ídí C.S. 967



Finally, in the two cases *head* and *brain*, school education seems to have facilitated lexical diffusion: Under the keyword *head*, the stem -*ɔngɔ* – genuine to Central Kenya Bantu – seems to compete over distribution with two stems relating to Common Bantu *-túè C.S. 1808. In Meru and Gikuyu, the form *kɪ.ɔngɔ* is attested in vernacular text books (Laughton 1961: 16; Wanjaũ 1989: 16) and seems to have replaced the Common Bantu form. In Kamba, in contrast, the Common Bantu form is used in school literature (Mwende 2006: 74); it seems to replace the stem -*ɔngɔ*:

(112) 002 head **a. Meru**

mʊ.tʊɛ	only four locations: Imenti (1a), Nkubu (3a), Miutini (7, 12)	< CB *-túè C.S. 1808
kɪ.ɔngɔ	widespread in Meru	< school literature

b. Gikuyu / Western

mʊ.twɛ	only in Gichugu	< CB *-túè C.S. 1808
kɪ.ɔngɔ	all remaining western dialects	< school literature

c. Kamba

mʊ.twɛ	widespread in Kamba	< school literature, CB
ky.ɔngɔ	less widespread in Kamba	< non-standard form

In the case of *003 brain*, the genuine form *tɔmbɔ* is used in Gikuyu school text books (Wanjaũ 1989: 17). It competes over distribution with the Swahili loan *akiri*. Possibly, school education is able to promote the use of the genuine form.
On a side note, there are three additional cases showing an unusually high amount of diversity. However, the reason behind this is unclear; the three items *011 nose*, *017 tongue*, and *075 to cure* remain inconclusive.
In sum, the lexical distances shown by the field 'The Body' resemble the overall lexico-dialectometrical results, i.e. in both cases Central Kenya Bantu is divided into the three major groups Eastern versus Western versus Kamba:

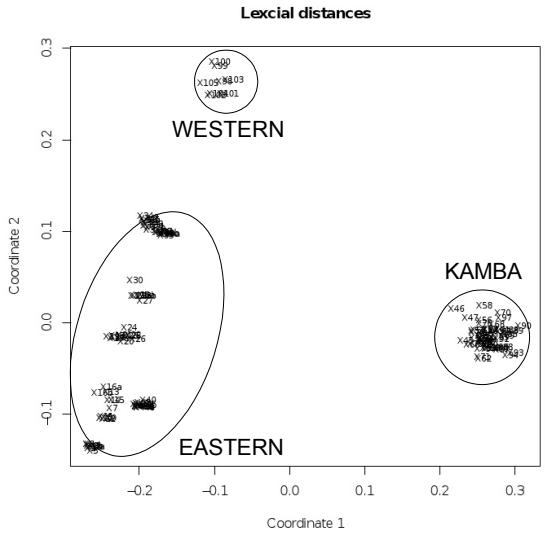


Figure 32: Lexical distances in CKB (overall result = figure 29)

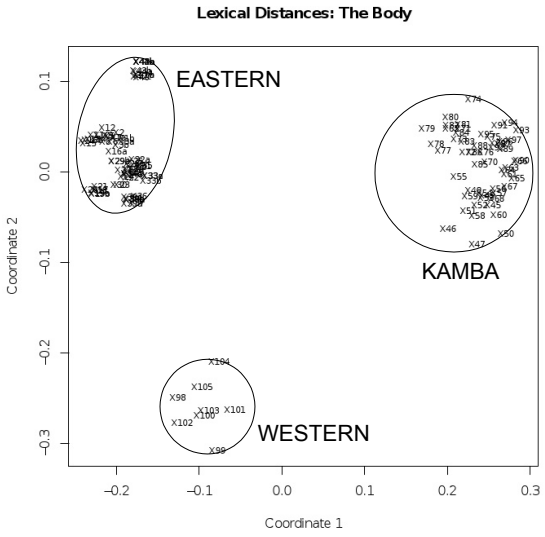


Figure 33: Lexical distances in the field 'The Human Body' (= figure 31)

Albeit generally similar, the two figures 32 and 33 show differences in regard to the internal diversity of the eastern dialects. In the overall result of figure 32, all eastern dialects are relatively distinct from each other, while they are clustered closely in figure 33 (Tharaka is considerably distant to its neighbors on the slopes of Mount Kenya, cf. figure 31).
There is not a single item among the terms relating to the human body that would on its own attest to the three-way split depicted in figure 33 above. Therefore, we may conclude that the particular division in this semantic domain is based on the sum of all items reviewed in this field. It seems that both conservative and less stable items have contributed to the picture of a general three-way split in regard to the field 'The Body'.
The field comprises a total of 71 lexical items; almost half of these items – a total of 32 – represents conservative concepts:

001 body (CB *-bìdì C.S. 112)	040 flesh (CB *-yàmà C.S. 1909)	058 the dream (CB *-dóót- C.S. 672)
002 head (CB *-túè C.S. 1808)	041 bone (CB *-píndí C.S. 1526)	063 sickness /
006 face (CB *-cịú C.S. 347)	042 vein (CB *-kịpà C.S. 1087)	064 to fall ill (CB *-dúád- C.S. 667)
012 eye (CB *-yịcòdị C.S. 2031)	044 intestines (CB *-dà C.S. 442)	067 to vomit (CB *-tápik- C.S. 1684)
014 ear (CB *-kùtú C.S. 1243)	045 heart (CB *-kódò C.S. 115)	069 wound (CB *-dòndà C.S. 656)
015 mouth (CB *-nụ̀à C.S. 1379)	046 lungs (*-pud-)	072 to swell (CB *-bịmb- C.S. 144)
020 neck (CB *-kịngò C.S. 1086)	049 kidney (CB *-pịgo C.S. 1549	077 to give birth
021 shoulder (CB *-tụ́ụ́dị C.S. 1862)	050 saliva (CB *-tá C.S. 1629)	(CB *-bịad- C.S. 136)
028 finger (CB *-yádá C.S. 1893)	054 to sneeze (*-cimud-, *-tip-)	547 fatigue (*-nog-)
030 back (CB *-gongo C.S. 858)	055 to be tired (*-nog-)	
033 breasts (*-nonto)	036 to sleep (*-mama, *-koma)	
036 foot (CB *-gùdù C.S. 884)	057 to dream /	

Table 94: Stable concepts in the field 'The Human Body' in all of CKB

The following items may be considered unstable, i.e. they have been subject to diffusion or semantic change:

External borrowing	**Internal borrowing**	**Semantic Change**
003 brain (Sw.)	002 head (school)	005 forehead
005 forehead / 006 face	016 lip (downhill)	025 left hand
009 chin	018 tooth (downhill)	026 right hand
019 throat	026 right hand (downhill)	065 fever
025 palm of hand	029 fingernail (downhill)	
023 armpit (Sw.)	039 skin (downhill)	
024 elbow (Cush.)	059 snoring (downhill)	
037 anklebone		
047 blood (Cush.)		
033 heel		
060 blind		
066 to shiver		

074 scar
076 medicine (Sw.)

Table 95: Unstable concepts in the field 'The Human Body' in Kamba

External borrowing	**Internal borrowing**	**Semantic Change**
003 brain	002 head (school)	005 forehead
023 armpit (Sw.)	003 brain (school)	007 cheek
024 elbow (Cush.)		008 jaw
031 ribs		029 fingernail
037 anklebone (Cush.)		
038 heel		
039 skin (Sw.)		
043 blood (Cush.)		
048 liver (Sw.)		
065 fever (Sw.)		
076 medicine (Sw.)		
134 voice (Sw.)		

Table 96: Unstable concepts in the field 'The Human Body' in Western

External borrowing	**Internal borrowing**	**Semantic Change**
005 forehead	002 head (school)	005 forehead
023 armpit (Sw.)	004 hair (montane)	007 cheek
024 elbow (Cush.)	047 to breathe (uphill)	008 jaw
032 chest		029 fingernail
037 anklebone		
038 heel		
043 blood (Sw., Ma.)		
051 sweat (Cush.)		
052 to take a bath (Ma.)		
059 to snore		
063 sickness		
065 fever (Sw.)		
073 blister (Ma.)		

Table 97: Unstable concepts in the field 'The Human Body' in Eastern

The following conclusions may be drawn regarding the historical dynamics in the field 'The Human Body': In general, it is safe to say that both inheritance and contact have contributed to the particular three-way split of Central Kenya Bantu in this field.

As not a single item on its own attests to the general three-way split of Central Kenya Bantu, it may be stated that this particular division is based on the sum of all items reviewed in this domain. The sum of all stable items, therefore, attests to divergence between Western, Eastern, and Kamba. Embu-Mbeere seems to be relatively close to its eastern neighbors based on genealogy in this field.

Especially Kamba has been further distanced from all its neighbors by exclusive borrowing from external donor languages. Borrowing between the three clusters, in total attested to by eight items, has never been strong enough to bridge the gap between Eastern, Western, and Kamba. The same holds for external borrowing: In each instance of mutual borrowing from external donors, only a relatively limited number of dialects are affected. Swahili has most severely affected the western dialects, while Maasai influence seems to have been most effective in the eastern varieties. In short, external borrowing in this field has only had a leveling effect on adjacent dialects (which seems to have contributed to the particular clustering of the eastern dialects in this domain) rather than resulting in the homogenization of the entire group. Insofar, even less stable items contribute to the general diversity between the three major clusters.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	unique innovations in Kamba (ex. 95)	exclusive contact w/ external donors in Kamba (ex. 106)	conceptual issues separate Kamba from the rest (ex. 98-100)
East vs. Rest	high	phon. divergence; unique innovation in Eastern (ex. 96)	East most strongly affected by Maasai and Cushitic (ex. 107)	East distanced by Maasai and Cushitic contact
West vs. Rest	high	divergence (ex. 97)	West most strongly affected by Swahili (ex. 107)	West distanced by Swahili contact
Embu-Mbeere-Eastern	low	shared innovation (table 94)	---	low distance most likely due to common heritage
Tharaka vs. East	high	---	Tharaka set apart by unique way of borrowing (metathesis), (ex. 103)	---

Table 98: Summary of the qualitative analysis in the field 'The Body'

Total number of items	71	
Inconclusive cases	3	
	68	
Items affected by borrowing	Kamba:	22 (32%)
Downhill: 6 Uphill: 1 Montane: 1 Swahili: 8 Maasai: 3 Cushitic: 4	Western:	14 (21%)
	Eastern:	16 (23%)
Average borrowability in CKB		**25,3%**
Loanword typology (Tadmor 2009)		14,2%

Table 99: Domain Statistics for the field 'The Body'

3. Motion

The semantic field 'Motion' ranks relatively low in the loanword typology, i.e. only 17,3 percent of loanwords have been identified cross-linguistically. Compared to the field 'Sense Perception' (11,0%), however, this field shows a relatively high amount of loans in the languages compared by the loanword typology project.
In this study, 15 items are compared in this field, all of which are verbs:

076 to go (Sw. *-enda*)	085 to arrive (CB *-pịk- C.S. 1550)	100 to swim (CB *-càmb- C.S. 267)
081 to leave (CB *-tíg- C.S. 1746)	092 to run away	101 to jump
082 to remain (CB *-kàd- C.S. 974)	093 to follow	103 to fall
083 to come from	094 to return (Ma. *a-shúk*)	204 to enter
(CB *-kúm- C.S. 1262)	095 to send (CB *-túm- C.S. 1831)	
084 to come (CB *-yìi- C.S. 2045)	096 to bring (CB *-déét- C.S. 546)	

Table 100: Lexical items reviewed in the field 'Motion'

The multidimensional scaling of the dialectometrical results for the field 'Motion' renders the following picture in figure 34:

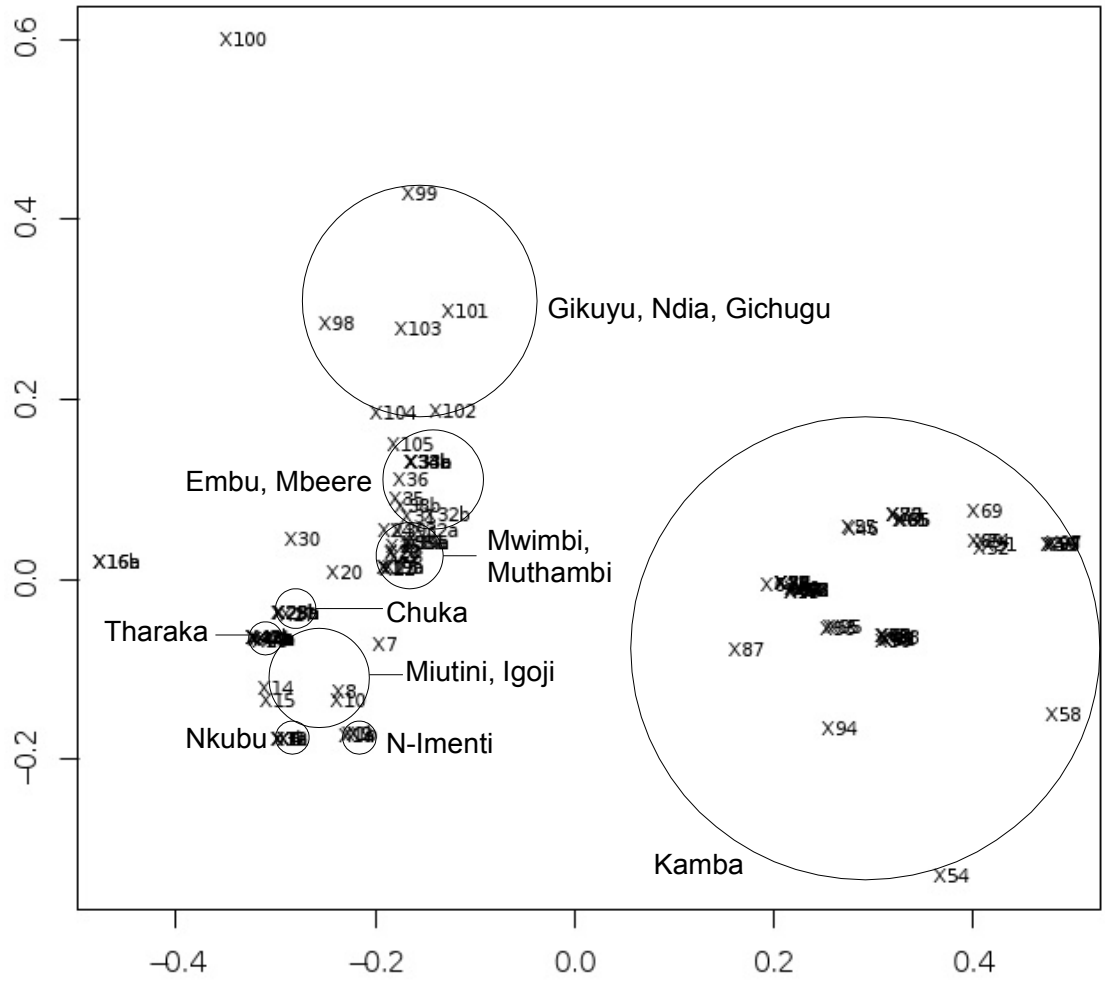


Figure 34: Multidimensional scaling of lexical distances in the field 'Motion'

Unlike the overall dialectometrial results representing a general three-way split of Central Kenya Bantu (see figure 29 in section 3.2.1), the multidimensional scaling of the results in the field 'Motion' shows a general two-way split: Kamba versus the remaining varieties. The distance between the western dialects and at least some of their eastern neighbors are relatively low. The Gikuyu dialect of Murang'a as well as the two western varieties Ndia and Gichugu are relatively close to Embu-Mbeere and Mwimbi-Muthambi. The remaining dialects are situated in the lower left part of the picture, all fairly close to each other[19]
Kamba is set apart from all its neighbors in regard to seven items. Two cases attest to divergence as the reason behind the relatively large distance between Kamba and the other varieties. In the remaining five cases, Kamba seems to have been in contact with external donor languages, that have never impacted the rest of Central Kenya Bantu. The following item in (113) shows an innovation unique to Kamba:

(113)	081 to leave	CB *-tɟg- C.S. 1746	>	*-tiga*	Eastern, Western
			>	*-tia*	Kamba
		additionally attested in Kamba: *-ɛka, -ɛkana*			(innovation)

Example (113) above shows that all varieties have retained the Common Bantu item *-tɟg- C.S. 1746. Kamba uses an additional – unique – form *-ɛka(na)*.
In the following example (114), Kamba is the only variety to have retained the Common Bantu form, while the remaining dialects diverge by exclusively sharing an innovation:

(114)	085 to arrive	*-kɟna*	Eastern, Western		(innovation)
		-bika	Kamba	<	CB *-pɟk- C.S. 1550

The keyword *to remain*, in turn, separates Kamba from most of the remaining varieties as well. In this case, however, two facts are shown: On the one hand, the keyword *to remain* reveals conceptual differences. On the other, it attests to downhill borrowing from the slopes of Mount Kenya into Kamba:

(115)	082 to remain	CB *-kàd- C.S. 974 'to dwell'	>	*-kara*	Meru, Igoji
			>	*-i.kara*	Nithi, Chuka, Embu-Mbeere, Tharaka, Western
				(borrowed into Kamba as *-ɪ.kala*)	
		CB *-tɟgad- C.S. 174 'to stay'	>	*-ti^{g}wa*	Kamba
			>	*-tigara*	Kiambu-Gikuyu
				(borrowed into Kamba as *-tiala*)	

Example (115) above shows that all dialects in the vicinity of Mount Kenya use a form relating to Common Bantu *-kàd- C.S. 974 'to dwell' in order to express the concept of

19 The reason for the seeming diversity within the western dialects in this field seems to be due to the relatively low amount of speakers interviewed in this area (locations 98-105).

remaining. Kamba and Kiambu-Gikuyu use forms relating to the notion of staying behind (CB *-tįgad- C.S. 174). Both cases suggest downhill borrowing into Kamba. In short, the conceptual difference between 'to dwell' and 'to stay behind' sets Kamba apart from all its neighbors except for Kiambu. Downhill borrowing into Kamba has, however, 'neutralized' the difference between Kamba and the rest of Central Kenya Bantu in regard to the item *to remain*.
In the following case (116), Kamba shows the unique loanword *-bikıla.* Moreover, Kamba attests to another unique form *-atııa*, which is regular in shape as well as widespread in Kamba. Therefore, it seems unlikely that *-atııa* is a loan rather than a genuine Kamba form:

(116)	093 to follow	*-ðingata*	Meru, Igoji, Nithi, Chuka, Embu (32a), Mbeere, Tharaka
		-rʊmırıra	Muthambi (24), Embu, Mbeere (36, 38b), Western
		-atııa	Kamba (45-69, 71-74, 85-97)
		-bikıla	Kamba (70, 75-84)
			(the occurence of /l/ suggests borrowing; cf. CB *-pįk- C.S. 1550)

Under the keyword *to jump,* again, Kamba shows various forms that are all unrelated to the items in the remaining varieties:

(117)	101 to jump	*-ðʊngʊða*	Meru, Igoji (13-15), Tharaka
		-rʊ:ga	Miutini (7), Igoji (13), Nithi, Embu, Western
		-tʊ:ɦa	Chuka
		-tʊ:va	Mbeere
			v e r s u s
		-ðaŋʊka	Kamba (46, 49, 50, 52-54, 64, 65, 94)
		-tʊʊlıla	Kamba (60, 61, 66, 67)
		-tʊlıla	Kamba (47, 48, 51, 56, 58, 59, 71, 90, 93, 96)
		-tuıla	Kamba (63, 68, 69, 70, 72-86, 88, 91, 92, 95, 97)
		-kila	Kamba (45, 87, 89)
		-ðaka	Kamba (55, 57)

Possibly, all forms listed for Kamba in (117) are loanwords – the restricted distribution of these items may be understood as an indication of borrowing. All forms showing /l/ are considered aberrant and, therefore, likely to have been borrowed. In short, exclusive

borrowing from an unknown donor separates Kamba from the remaining varieties in regard to the keyword *to jump*.
In regard to the items *to fall* and *to enter*, Kamba is, again, set apart from all its neighbors due to exclusive borrowing from languages outside Central Kenya as the occurrence of /l/ indicates:

(118)	103 to fall	*-balʊka*	Kamba
			v e r s u s
		-gʊa	Eastern, Western
	204 to enter	*-lika*	Kamba
			v e r s u s
		-kʊrʊka	Meru, Igoji
		-tɔɲa	Miutini (7, 8), Igoji (14), Muthambi (22, 24), Embu, Mbeere
		-ðʊngɪra	Miutini (8, 10), Igoji (16), Nithi, Chuka, Embu (30), Mbeere (35, 39c), Tharaka
		-ingɪra	Nyeri, Mathira, Ndia (Western)
		-ɦingɪra	Murang'a, Gichugu (Western)

In sum, Kamba is separated from all other languages on the basis of seven lexical items. On the one hand, it seems to have diverged from all its neighbors; on the other hand, exclusive borrowing has distanced Kamba from the rest of Central Kenya Bantu.
The relatively low distances between the western dialects and Embu-Mbeere as well as Mwimbi-Muthambi depicted in figure 34 above seem to be due to inheritance. The following three items suggest shared innovations for the western dialects, Embu-Mbeere, and Mwimbi-Muthambi:

(119)	084 to come	*-ʊːka*	Muthambi, Embu, Mbeere
		-ʊka	Western, Kamba
			v e r s u s
		-ɪːja	Meru, Igoji, Mwimbi < CB *-yìi- C.S. 2045
		-UJA	Chuka, Tharaka < CB *-yìi- C.S. 2045 (?)

101 to jump	*-rʊ:ga*	Mwimbi, Muthambi, Embu, Western
		(+ one location each in Miutini and Igoji)
		v e r s u s
	-ðʊngʊða	Meru, Igoji, Tharaka
	-TU:PA	Chuka, Mbeere
	-ðaɲʊka	Kamba
	-tʊʊlɪla, -tʊlɪla	etc. Kamba (loans)
204 to enter	*-ðʊngɪra*	Mwimbi, Muthambi, Chuka, Embu (35), Mbeere (39), Tharaka
	-ingɪra	all of Western except for
	-ɦingɪra	Murang'a, Gichugu
		v e r s u s
	-kʊrʊka	Meru, Igoji
	-tɔɲa	Mbeere + scattered on the eastern slopes
	-lika	Kamba (loan)

The three entries in (119) above account for the relatively low distances between Western, Embu-Mbeere, and Mwimbi-Muthambi. They also exemplify that bundled isoglosses are generally difficult to identify: For example, the form *-ʊk a* under the keyword *to come* connects not only the western dialects with Embu-Mbeere but also with Kamba.

In the case of *to come*, Western, Embu-Mbeere, and Muthambi agree in using a form unrelated to Common Bantu (shared innovation). Under the keyword *to jump*, Western, Embu-Mbeere, and Mwimbi-Muthambi agree in a single form *-rʊ:ga,* while the remaining varieties show various unrelated forms. The notion of *to enter* seems to go back to a form **-ing-*, which, according to Möhlig (1974a: 139) is genuine to the Western dialects and their immediate neighbors in the foothills of Mount Kenya. In short, the clustering of Western, Embu-Mbeere, and Mwimbi-Muthambi seems to be due to shared innovations, as there is no indication of language contact regarding the items listed in example (119).

The field 'Motion' also shows external borrowing on the one hand and internal borrowing on the other. External borrowing into Kamba, yet again the most severely affected variety, has been exemplified above under the keywords *to follow* (example 116), *to jump* (example 117), and *to enter* (example 118). In total, Kamba shows loans from unknown donors in five instances:

(120) Loanwords in Kamba

093 to follow	*-bikɪla*	Kamba: North-Kitui and Mumoni
095 to send	*-latia*	Kamba: one location in Masaku
		(all others: *-tʊma* < CB *-túm- C.S. 1831)
101 to jump	*-tʊʊlɪla*	Kamba: Masaku-East
	-tʊlɪla	Kamba: relatively widespread

	-tʊɪla	Kamba: relatively widespread
	-kila	Kamba: three times in Masaku and Kitui
103 to fall	*-balʊka*	Kamba: all locations
204 to enter	*-lika*	Kamba: all locations

Kamba has, in addition, borrowed from its neighbors on Mount Kenya in the case of *082 to remain* (cf. example 115).
The western and eastern dialects have been less affected by borrowing than Kamba. Only the item *to swim* shows formally aberrant shapes in these varieties, which are indicative of borrowing:
All of the three major groups of Central Kenya Bantu dispose of forms relating to Common Bantu *-càmb- C.S. 267. In addition, a number of items occur under this keyword in Eastern and Western that need to be considered irregular suggested by the aberrant segment /b/:

(121)	100 to swim	*-càmb- C.S. 267	>	*-ðambɪra*	Eastern, Kiambu, Murang'a, Mathira
			>	*-ðambɪa*	Kamba
			>	*-ɪ.ðambɪra*	Gichugu
				-bʊtɪra	Mwimbi (17, 21), Muthambi, Chuka (29), Tharaka (41-43)
				-bʊcɪra	Chuka (28)
				-ɪ.bʊtɪra	Embu, Mbeere (31, 32)
				-bʊtɪa	Mbeere (36, 38), Ndia
				-tʊbɪra	Nyeri

Eastern & Western

The form *-tʊbɪra* is attested for all three locations of Nyeri. The similar entries listed in (121) above seem to be metathesized forms of this item, all restricted in distribution. In every one of the relevant dialects, /b/ is considered an aberrant segment, i.e. external borrowing may be assumed for all the relevant eastern and western dialects in this instance. From a distributional perspective, it seems likely that Gikuyu has first borrowed the form externally and then transmitted it among its neighbors counterclockwise around Mount Kenya ('montane borrowing').
The influence by Swahili and Maasai involves only one item each in this semantic class, *079 to go* and *094 to return*, respectively. Six locations in Kamba, most of them in the Masaku area, use the Swahili loan *-ɛnda* to denote the meaning 'to go'. Moreover, every variety uses a form going back to Maasai *a-shúk* 'to give back' (Tucker and Mpaayei 1955: 304) to denote the concept of returning. These forms, e.g. *-cɔka* (Tharaka) or *-ciɔːka* (Embu), are quite diverse in terms of phonology – a total of six phonologically divergent forms is attested under this meaning. These forms seem to have made their way into the Central Kenya Bantu languages by parallel borrowing from Maasai. The meaning may refer to the social interdependence between Maasai and Bantu communities.

In sum, there are five out of 15 items that can be considered stable concepts in all of Central Kenya Bantu (*081 to leave*, *083 to come from*, *084 to come*, *085 to arrive, 096 to bring*). In total, nine[20] items are considered unstable in the entire group, i.e. they have been affected by borrowing in at least one variety. This high number is due to the relatively large extent of external borrowing in Kamba. The item *to go*, for example, is labeled unstable because six locations in Kamba show the Swahili loan *-ɛnda* under this meaning. However, all other locations of Central Kenya Bantu show the regular form *-tʊma* (< CB *-túm- C.S. 1831). Insofar, borrowing has not been as extensive as the total amount of thirteen unstable items may suggest. In fact, only two items seem unstable in the western and eastern dialects:

External borrowing	**Internal borrowing**
076 to go (Sw.)	082 to remain (downhill)
093 to follow	
101 to jump	
103 to fall	
094 to return (Ma.)	
095 to send	
204 to enter	

Table 101: Unstable concepts regarding the field 'Motion' in Kamba

External borrowing	**Internal borrowing**
094 to return (Ma.)	100 to swim (montane)
100 to swim	

Table 102: Unstable concepts regarding the field 'Motion' in Western and Eastern

The following conclusions may be drawn in the field 'Motion': Kamba has been much more affected by external borrowing than the rest of Central Kenya Bantu, which sets Kamba apart from all other varieties. In the eastern and western dialects, in contrast, the vast majority of motion verbs are unaffected by borrowing. The relatively low distances between these varieties in the field 'Motion', consequently, seem to be based on common heritage or some sort of deeper historical affiliation.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	divergence (ex. 113, 114)	exclusive contact w/ external donors in Kamba (ex. 116, 117, 120)	conceptual issues separate Kamba from the rest (ex. 115)
West-Embu-Mbeere-Mwimbi-Muthambi	low	shared innovation (119)	---	low distance due to inheritance
West - East	low	shared innovation (114)	mutual contact w/ external donors (ex. 121)	genetically close, additionally homogenized by contact

Table 103: Summary of the qualitative analysis in the field 'The Body'

20 The item *092 to run away* is inconclusive, as the unusually high amount of diversity remains to be explained.

Total number of items	15	
Inconclusive cases	1	
	14	
Items affected by borrowing	Kamba:	8 (57%)
Downhill: 1 Montane: 1 Swahili: 1 Maasai: 1	Western / Eastern:	2 (15%)
Average borrowability in CKB		**38,0%**
Loanword typology (Tadmor 2009)		17,3%

Table 104: Domain Statistics for the field 'Motion'

4. The Physical World

The field 'The Physical World' shows 19,8 percent of loanwords in the world's languages and ranks in the lower third of the loanword typology by Haspelmath and Tadmor (2009a).

In this study, 35 lexical items are reviewed in this field:

208 well (CB *-cɟmá C.S. 353)	435 rain	449 river (CB *-yíjì C.S. 2000)
423 darkness	(CB *-bʊ́dá C.S. 225, Ma. *ngai*)	450 lake (CB *-dɨ̀bà C.S. 603)
425 light	436 to rain (CB *-bʊ́d- p.s. 440)	451 stone (inconclusive)
426 sun	437 lightning	452 dust (CB *-kùngú C.S. 1230)
(CB *-júbà C.S. 955, Sw. *jua*)	438 thunder	453 mud (CB *-tàká C.S. 1649)
427 to shine (inconclusive)	440 land (CB *-cí C.S. 33)	454 sand (CB *-càngà C.S. 288)
428 shadow (inconclusive)	441 forest	455 soil (CB *-càngà CS 288)
429 heat (inconclusive)	442 mountain (CB *-dìmà C.S. 569)	456 path (CB *-jìdà C.S. 940)
430 moon (CB *-yédɨ̀ C.S. 1964)	443 rock	457 road (Sw. *barabara*, Eng. *rail*)
431 star	(CB *-pígà C.S. 1548)	458 place (CB *-ntù C.S. 1798)
432 wind	446 cave	459 village (Eng. *village*)
433 to blow (CB *-pʊ̀ʊ̀p- C.S. 1623)	447 hole (CB *-dìm- C.S. 568)	585 dirt (CB *-kò C.S. 1093)
434 cloud (CB *-tʊ̀ C.S. 1855)	448 water	

Table 105: Lexical items reviewed in the field 'The Physical World'

The diagram in figure 35 below, representing the lexical distances in the field 'The Physical World', has a striking resemblance to the general picture of lexical distances within Central Kenya Bantu (see figure 29 in section 3.2.1): It shows a general three-way split: Kamba is situated in the lower right corner, while the western dialects of Gikuyu, Ndia, and Gichugu are located in the upper left of figure 35. Finally, the remaining dialects – Eastern Kirinyaga – are more or less closely grouped together in the lower left of the picture, Embu and Mbeere being somewhat distant to its eastern neighbors.

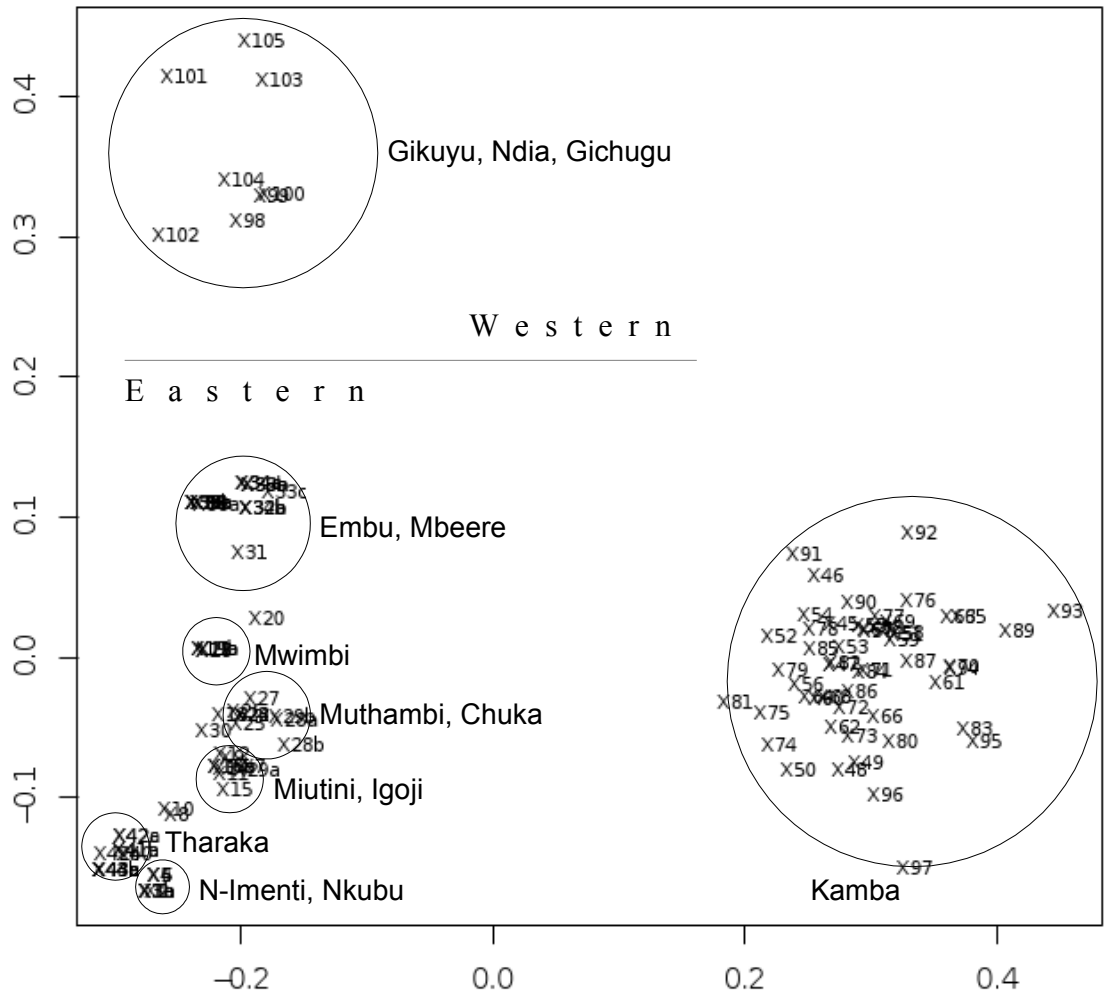


Figure 35: Multidimensional scaling of lexical distances in the field 'The Physical World'

As bundled isoglosses are generally difficult to identify, it is to be noted that the three-way split depicted in figure 35 is based on the sum result of all calculations carried out in this semantic field. There are, however, three items attesting to this particular division. In the case of the keywords *moon*, the three-way split is due to phonological divergence:

(122)	430 moon	CB *-yédị C.S. 1965	>	*mʊ.ɛ:ri*	Eastern
			>	*mw.ɛ:ri*	Western
			>	*mw.ɛi*	Kamba

The keyword *water* attests to the typical three-way division as well. However, in this instance, there seems to be borrowing involved. In the following case (123), the eastern dialects show a multitude of partially divergent forms. According to Möhlig (1974a: 170), the relatively high level of diversity is due to external borrowing. Kamba and the western group each show unrelated forms. It seems that the latter two have been unaffected by borrowing in the case of the keyword *water*:

(123)	448 water	*rU.Uji*	Meru, Tharaka	Eastern
		rU.:ji	Igoji, Nithi	
		rU.nji	Chuka	
		ma.nji	Embu, Mbeere	
		ma.nzi	Kamba (87, 94)	
		ma.nji	Embu (34a-c)	
		kI.^{g}wu	Kamba	
		maI	Western	

In the case of *soil*, the typical three-way split is attested as well. However, in this instance the three groups diverge mainly on the basis of different concepts[21]:

(124)	455 soil	*mU.ðɛtu*	Eastern	'soil'
		mU.ðanga	Kamba	'sand' < CB *-càngà CS 288
		tI:ri	Gikuyu	'land'

There are four cases in which Kamba is set apart from all other varieties based on divergence. In the following case of (125), Kamba shows a unique innovation next to a form relating to Common Bantu:

(125)	434 cloud	CB *-tụ̀ C.S. 1855	>	*I.tu*	Eastern, Kamba
			>	*i.tu, ma.tu*	Western
				additionally in Kamba: *I.ðɛɔ, I.ðwɛɔ, I.ðyɔ*	

The concept of *sand* is, in turn, expressed by a form relating to Common Bantu *-càngà C.S. 288 'sand' in the eastern and western dialects. Kamba differs slightly under this keyword: It seems to show a compound of the two Common Bantu items *-càngà C.S. 288 'sand' and *-cí C.S. 330 'land'. This construction may have emerged as a disambiguation strategy, i.e. to distinguish the concepts of *sand* and *soil* (cf. example 124 above):

(126)	454 sand	*-ðanga*	Eastern, Western	< CB *-càngà C.S. 288
		-ðangaðI	Kamba	< CB *-càngà C.S. 288 + CB *-cí C.S. 330

In the following two cases in (127), no connection to Common Bantu can be made. However, all forms are regular in shape as well as widespread in distribution; thus, borrowing seems unlikely. The items *light* and *lightning* distinguish Kamba from all other dialects based on divergence (innovations):

21 Two locations in Masaku-Kamba (61, 65) show the loan *I.livI*. For this reason, the item *455 soil* needs to be considered unstable in Kamba, even though the majority shows stable forms.

(127)	425 light	*wɛːrᴜ, wɛːrᴜ*	Eastern (excluding Embu-Mbeere)
		ᴜ.ðɛri	Western, Embu-Mbeere
		ky.ɛni	Kamba
	437 lightning	*rᴜ.ɦɛːni*	Western and Eastern (excluding Embu-Mbeere)
		rᴜ.vɛːni	Embu, Mbeere
		ᴜ.tisi	Kamba

Under the keyword *sun*, in turn, Kamba is, yet again, set apart from all its neighbors. In this case, the Kamba form seems to go back to Swahili rather than Common Bantu:

(128)	426 sun	CB *-júbà C.S. 955	>	*ri.ᴜːa*	Eastern
			>	*ri.ᴜa*	Western
		Sw. *jua*	>	*sᴜa*	Kamba (prevailing form[22])
			>	*ɪ.sᴜa*	Kamba (62, 74, 79)
			>	*ʃᴜa*	Kamba (71, 80)

In sum, Kamba is set apart from all its neighbors due to both inheritance and contact. In the case of *water* (example 123), the eastern dialects seem to have been affected by external borrowing, which never impacted Kamba in this instance. The item *sun* in (128) suggests exclusive language contact between Kamba and Swahili. Divergence is suggested by the remaining cases: *moon* (ex. 122), *soil* (ex. 124), *cloud* (ex. 125), *sand* (ex. 126), *light*, and *lightning* (ex. 128).

The qualitative analysis of lexemes relating to the physical world has shown thus far that Kamba is set apart from the remaining varieties in a number of items. In contrast, the following item in (129) unites Kamba with most eastern dialects while separating these two groups from the western varieties – this relates to the fact that isoglosses are generally not bundled in Central Kenya Bantu.

(129)	453 mud	CB *-tàká C.S. 1649	>	*ndaka*	Kamba, Embu, Mbeere (+ Gichugu)
			>	*ntaka*	Meru, Nithi, Chuka
				ndɔndɔ	Tharaka
				mᴜ.tɔndɔ	Kamba (45, 59), Murang'a
				ndɔrɔ	Western

22 The form *sᴜa* prevails in Kamba, possibly due to its use in Kamba schoolbooks (cf. Mwende 2006: 41).

Example (129) above shows that almost all locations of Kamba as well as the majority of the eastern dialects use forms relating to Common Bantu. Most western dialects, in contrast, show the form *ndɔrɔ*, which may be considered a unique innovation.
There are two additional items – *well* and *land* – uniting Kamba with the eastern dialects while separating the two from almost all western dialects. In these cases, there are conceptual issues to be considered:

(130)	208 well	CB *-cɟmá C.S. 353 'well'	>	*kɪ.ðima*	Eastern, Kamba (*gɪ.ðima* in Nyeri)
				v e r s u s	
		CB *-dìm- C.S. 568 'to dig'	>	*(g)i.rima*	Western
				cf. *266 to cultivate, 267 to dig, 447 hole*	
	440 land	CB *-cí C.S. 330	>	*nðɪ*	Eastern, Kamba (*-ðɪ* in Nyeri and Ndia)
				v e r s u s	
				mU.ɦUnda (Western)	cf. *209 garden*, *265 field*
				mU.gUnda (Western)	cf. *209 garden*, *265 field*
				tɪːri (Western)	cf. *452 dust*, *455 soil*

The western form *(g)i.rima* listed in (130) under the keyword *well* relates to the Common Bantu item *-dìm- C.S. 568, which also occurs under the meanings *to cultivate*, *to dig*, and *hole*. Possibly, the item *kɪ.ðima* refers to a natural well, whereas *(g)i.rima* describes a hole dug in order to draw water. In the case of *land* in (130) above, the western dialects use forms also appearing under different meanings. Again, this seems to be a conceptual issue – in English the term *land* may be understood in various ways as well, e.g. in most general terms as the earth's surface. It may also denote the territory of a nation or any type of real estate property, such as cultivation grounds. In sum, all items listed in (130) may be considered stable; there are no indications of borrowing. The differences described by (130) seem to be due to conceptual issues rather than semantic change.
The fact that the western form *tɪːri* listed in (130) under the meaning *land* also occurs under the keywords *dust* and *soil* shows a general lack of distinction between such concepts in some varieties:

(131)	452 dust	CB *-kùngú C.S. 1230 'dust'	>	*rU.gUnkU*	Miutini (9, 12), Chuka (30), Tharaka (42)
			>	*rU.gUngU*	Mwimbi, Embu, Mbeere, Western
			>	*kɪ.kungu*	Kamba
		cf. *440 land, 455 soil*		*tɪːri*	Meru, Igoji, Mwimbi (20), Chuka, Tharaka (42)
				ɪ.tuːrU	Muthambi

tUUkU	Tharaka
kɪ.tɔɔ	Kamba

The item *446 cave* also seems to attest to a difference in concepts: In all of Central Kenya Bantu, the stem *-*kuru*- is attested, e.g. in *gɪ.kurungu* (Meru), *ngurunga* (Embu, Western), and *ngunga* (Kamba). The stem *-*kuru*- seems to describe a type of cave ('grotto') that was used for dwelling by the early inhabitants of Mount Kenya in precolonial times. The stem is, for example, represented in the name Mukurueini, a village between the towns of Nyeri and Murang'a, that is believed to be the original home area of the Gikuyu (Mukurue wa Gathanga). Next to this concept, the keyword *cave* is also represented by the form *ɦiga* 'rock' (< CB *-pɟgà C.S. 1548) in Nyeri-Gikuyu and *i.rima* in Gichugu (< CB *-dìm- C.S. 568 , cf. *267 to dig, 447 hole*). There seem to be different concepts appearing under the keyword *cave*, i.e. a natural cave versus a (man made) shelter in the ground.[23]
A difference in concepts is also shown under the keyword *457 road*: Most dialects show a loan going back to Swahili *barabara*. In Kamba, the form *lɛlU* is attested, which, possibly, goes back to the English word *rail*. Most western dialects, in turn, use the form *njɪra,* originally denoting the concept of *path*, while Igoji and Chuka use the notion of *door* (*mU.rangɔ*) to describe the concept of *road*.
Next to conceptual issues, there are onomatopoetic forms relating to natural phenomena to be considered in this field. The item *to blow* refers to the sound made by the wind:

(132)	433 to blow	*-ɦuru:tana*	Meru, Chuka, Nyeri, Murang'a, Mathira, Ndia, Gichugu	
		-vuru:tana	Embu, Mbeere	
		-butana	Tharaka, Kamba	
		-buba	Kamba (69, 93)	< CB *-pu̱u̱p- C.S. 1623
		-ɦuɦa	Nyeri, Kiambu	< CB *-pu̱u̱p- C.S. 1623

The form *-butana* is listed for Kamba and Tharaka in (132) above. In the latter variety, the occurrence of /b/ is considered a formal aberrance (cf. *P_2 in section 3.1.2). Possibly, the form *-butana* originates in Kamba, from where it spread into Tharaka. The forms *-ɦuru:tana* and *-vuru:tana* are considered regular to the Kamba form *-butana*. Two locations in Kamba and Gikuyu show forms relating to the relevant Common Bantu item *-pu̱u̱p- C.S. 1623. All of the forms listed in (132) may be considered onomatopoetica.
The item *wind*, in turn, shows some similar forms to the ones listed under the keyword *to blow* in example (132) above:

(133)	432 wind	*r.u:wɔ*	Meru, Tharaka	
		rU.bu:bɔ	Chuka (28a), Embu, Mbeere	
		rU.ɦu:ɦɔ	Murang'a, Ndia, Gichugu	Western
		rU.ɦuɦɔ	Nyeri, Kiambu, Mathira	Western
		rU.kUngi	Nithi, Chuka, Embu (33a-c), Mbeere (38a)	
		U.kU:ngi	Kamba	

23 Example (131) may attest to the same type of conceptual difference under the keyword *208 well*: a natural well versus a man made water hole.

kɪ.sɛ:βɛ	Kamba
nzɛ:βɛ	Kamba
mbɛβɔ	Kamba (85, 97) (
	< CB *-pépò CS 1492, cf. *596 coldness*)
ᵾ.kuutani	Kamba (90)
kɪ.kuutani	Kamba (93)

The form *rᵾ.bu:bɔ* in Embu-Mbeere and one location of Chuka is probably borrowed, as the aberrant occurrence of /b/ suggests – otherwise we could expect these varieties to agree with their western neighbors in showing the regular form *rᵾ.ɦu:ɦɔ* (see also Möhlig 1974a: 168). As two Kamba locations show a similar form under the keyword *to blow* in (132) above (cf. CB *-pu̱u̱p- C.S. 1623), the irregular Embu-Mbeere form *rᵾ.bu:bɔ* listed under the meaning *wind* in (133) may attest to uphill borrowing. Since the possible Kamba source word is highly restricted in distribution, external borrowing from an unknown source, however, seems likely as well. Two locations in Kamba show the item *mbɛβɔ* (< CB *-pépò CS 1492), which is also listed under the keyword *496 coldness* and indicates different concepts relating to the notion of wind.

Under the keyword *thunder*, all forms seem to be onomatopoetica. The occurrence of /l/ in Kamba as well as the restricted distribution of the relevant items suggest external borrowing – consequently, this item needs to be viewed as unstable in Kamba:

(134)	438 thunder	*nkwa*	Meru, Chuka, Tharaka	
		ngwa	Embu, Mbeere Kamba, Western	
		ngɔrɔgɔrɔ	Imenti, Nkubu (3)	
		ngalalɪkɪ	Kamba	
		kɪ.kalalɪkɪ	Kamba (68)	
		kalalɪkɪ	Kamba (91)	
		ngɔlɛkɪ	Kamba	
		kɪ.tandalɪkɪ	Kamba (51, 52, 54, 61)	
		kɪ.tundumɔ	Kamba	
		ma.rurumɪ	Kiambu, Murang'a, Gichugu	Western
		i.rurumɪ	Mathira	
		kᵾ.uruma	Ndia	

Swahili has left traces in Central Kenya Bantu in a total of three items relating to the physical world. Two items show language contact with English, one item attests to Maasai influence. Most of the following loanwords in (135) are relatively restricted in distribution:

(135) **a. Swahili**

426 sun	Sw. *jua*	>	*sʊa*	widespread in Kamba
		>	*ɪ.sʊa*	Kamba (62, 74, 79)
		>	*ʃʊa*	Kamba (71, 80)
441 forest	Sw. *msitu*	>	*mʊ.ðitʊ*	Nithi, Chuka, Tharaka
457 road	Sw. *barabara*	>	*barabara*	Meru, Igoji, Nithi, Embu, Mbeere, Tharaka, most of Western
		>	*balabala*	Kamba

b. English

457 road	Eng. *rail*	>	*lɛlʊ*	Kamba
459 village	Eng. *village*	>	*birɛji*	Mathira

c. Maasai (Tucker & Mpaayei 1953)

435 rain	Ma. *ngai*	>	*ngai*	Meru: Imenti, Nkubu, Miutini

Internal borrowing is attested to by three items: The item *to blow* in (136) below shows uphill borrowing from Kamba into Tharaka. The item *lake* is, in turn, an attestation of downhill borrowing: All dialects relate to Common Bantu in this instance; Kamba has additionally borrowed from its neighbors. Downhill borrowing from the western dialects into Kamba is shown by the item *path* in the following example (136):

(136) 433 to blow (uphill) Kamba *-butana* → *-butana* Tharaka

450 lake CB *-dị̀bà C.S. 603

-ria *-ia*

Eastern, Western Kamba

yɪ.ia, yɪ.iya (downhill)

456 path Western *-cɪra, -sɪra* → *-sɪla, -syɪla* Kamba (downhill)

There are four items that remain inconclusive, i.e. the relatively high diversity may not be explained. In the case of *429 heat*, Möhlig (1974a: 168) suggests low frequency of usage behind the fact that a total of ten distinct forms is found under this keyword. A more satisfying historical explanation, however, remains to be found. The same holds for the keywords *427 to shine* and *428 shadow*. It is, moreover, unclear why Embu and Mbeere diverge from all other varieties in the case of *451 stone*.
The following items refer to stable concepts in all of Central Kenya Bantu:

208 well (CB *-cɟmá C.S. 353)	437 lightning (*-pen-, *-tis-)	452 dust (CB *-kùngú C.S. 1230)
425 light	440 land (CB *-cí C.S. 33)	453 mud (CB *-tàká C.S. 1649)
430 moon (CB *-yédị C.S. 1964)	442 mountain (CB *-dìmà C.S. 569)	454 sand /
431 star (*njata)	443 rock (CB *-pígà C.S. 1548)	455 soil (CB *-càngà C.S. 288)
434 cloud (CB *-tụ̀ C.S. 1855)	446 cave (*-kung-)	458 place (CB *-ntù C.S. 1798)
436 to rain (CB *-bụ́dá C.S. 225)	447 hole (CB *-dìm- C.S. 568)	585 dirt (CB *-kò C.S. 1093)

Table 106: Stable concepts in the field 'The Physical World' in all of CKB

Kamba has been affected by borrowing in the following five cases:

External borrowing	**Internal borrowing**
426 sun (Sw.)	450 lake (downhill)
457 road (Eng., Sw.)	456 path (downhill)
438 thunder	

Table 107: Unstable concepts in the field 'The Physical World' in Kamba

Borrowing in the eastern dialects is attested to the by the following six cases:

External borrowing	**Internal borrowing**
448 water / 449 river	533 to blow (uphill)
425 rain (Ma.)	
457 road (Sw.)	
441 forest (Sw.)	
432 wind	

Table 108: Unstable concepts in the field 'The Physical World' in Eastern

Finally, the western dialects have only been affected by borrowing in the case of *459 village* (English) and *457 road* (Swahili).

In sum, the following conclusion can be drawn from the qualitative discussion of words relating to the physical world:

In total, 18 out of 35 items in this field seem to be conservative in all of Central Kenya. The typical three-way split depicted in figure 35 above, consequently, is mostly due to linguistic divergence. There are, however, a few cases of conceptual differences to be considered. Nevertheless, the relevant items (*208 well*, *440 land, 446 cave, 452 dust, 455 soil*) can be described as stable as they seem to attest to conceptual differences rather than lexical change. Besides, onomatopoetica can be observed in the cases of *432 wind*, *433 to blow*, and *438 thunder*.

Nine items attest to external borrowing. In distributional terms, external loans are relatively restricted, i.e. each one occurs in a limited number of dialects. In the case of *448 water*, for example, only the eastern dialects are affected; in the case of *426 sun*, Kamba is the only variety to have borrowed from Swahili. Maasai has only affected the Meru dialects in the north of the language area.

Internal borrowing is shown by the following entries: The item *433 blow* shows uphill borrowing from Kamba into Tharaka. The items *440 lake* and *456 path* attest to the opposite borrowing direction, i.e. downhill from the slopes of Mount Kenya into the plains of Kamba.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	innovation in Kamba (ex. 125) divergence (ex. 127)	exclusive contact w/ external donors in Kamba (ex. 128, 134); exclusive contact w/ external donors in East and West (ex. 123)	conceptual issues in Kamba (ex. 124)
West vs. Rest	high	innovation in West (ex. 129)	---	conceptual issues in West (ex. 130)

Table 109: Summary of the qualitative analysis in the field 'The Physical World'

Total number of items	35	
Inconclusive cases	4	
	31	
Items affected by borrowing	Kamba:	5 (16%)
Downhill: 2 Uphill: 1 Swahili: 3 English: 2 Maasai: 1	Western:	2 (6%)
	Eastern:	7 (23%)
Average borrowability in CKB		**15,0%**
Loanword typology (Tadmor 2009)		19,8%

Table 110: Domain statistics for the field 'The Physical World'

5. Quantity and Quality

The outcome of the dialectometrical analysis in the field 'Quantity and Quality', yet again, resembles the general results of the lexical analysis presented in figure 29 (section 3.2.1). In figure 36 below, the general three-way split between Kamba, the western[24], and eastern dialects can be observed. Embu and Mbeere belong to the cluster on the eastern slopes of Mount Kenya in regard to lexemes relating to 'Quantity and Quality', as they are situated in a considerable distance to their western neighbors, while being rather close to Chuka, Mwimbi, and Muthambi. The following 30 items are treated in this field:

474 number (Eng. *number*)	479 all (CB *-yóncè C.S. 2123)	485 four (CB *-nà C.S. 1335)
476 crowd	481 to count (CB *-tád- C.S. 1639)	486 five (CB *-táánò C.S. 1662)
477 few	482 one (CB *-múé C.S. 1326)	487 six (CB *-tándàtú C.S. 1667)
(CB *-nɟ̀ɲɟ 'small' C.S. 1362)	483 two (CB *-bìdì C.S. 114)	488 seven
478 alone	484 three (CB *-tátù C.S. 1689)	489 eight

24 The fact that the different locations (98-105) of the western dialects are somewhat spread out in figure 36 is, again, due to the relatively limited amount of data elicited for these varieties. If more data were available, the western dialects would, presumably, show a higher degree of clustering.

490 nine (CB *-kèndá C.S. 1093)	518 other (CB *-ngí C.S. 810)	581 light
501 twenty	520 sign	593 fat
510 one hundred	521 end (Sw. *mwisho*)	598 to be sufficient
(CB *-gànà C.S. 774)	574 big (CB *-nénè C.S. 1350)	
511 to measure	575 small (CB *-nɟ̀ɲɟ́ C.S. 1362)	
512 weight (CB *-dɟ̀tò C.S. 631)	578 wide	
517 different	579 narrow	

Table 111: Lexical items reviewed in the field 'Quantity and Quality'

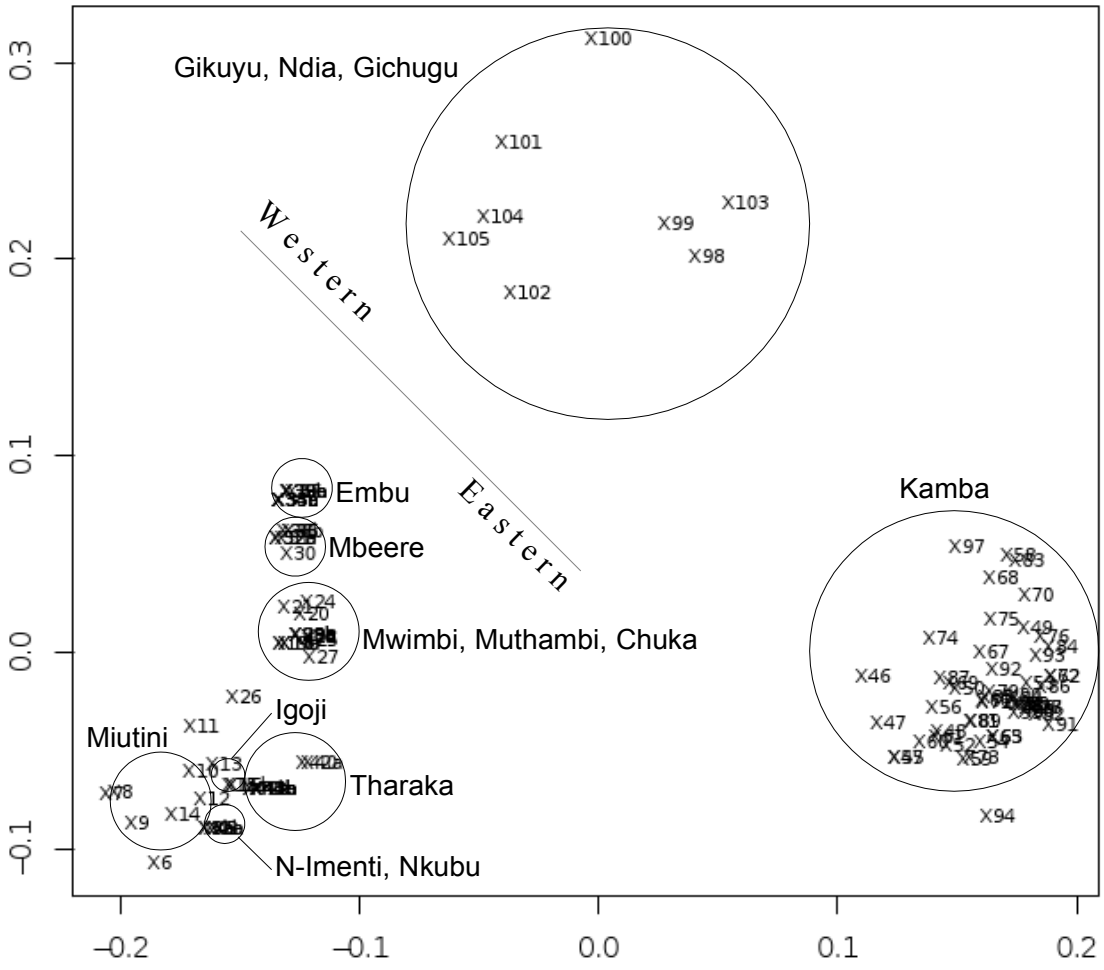


Figure 36: Multidimensional scaling of lexical distances in the field 'Quantity'

The following seven cases in (137) are non-diagnostic in dialectometrical terms, i.e. they show no variation and all – except for *to measure* – relate to Common Bantu:

(137)	475 many	*-ingɪ*	< CB *-yɟ́ngì C.S. 2082
	482 one	*-mwɛ*	< CB *-múé C.S. 1326
	485 four	*-na, -ɲa*	< CB *-nà C.S. 1335
	490 nine	*kɛnda*	< CB *-kèndá C.S. 1093

475 big	*-nɛnɛ*	< CB *-nénè C.S. 1350
510 to measure	*-ðima*	< *-cima
518 other	*-ngɪ*	< CB *-ngí C.S. 810

The above items in (137) may be considered conservative, i.e. they are archaic and have all been retained by every dialect. Another seven items also seem to be stable concepts; they show divergence, however, bundled isoglosses are, yet again, difficult to identify. The following six items in (138) show different sets of isoglosses, i.e. they attest to different divisions of Central Kenya Bantu:

(138) a. Kamba versus Eastern & Western

484 three	CB *-tátù C.S. 1689	>	*-tatU*	Kamba (+ one location of Nyeri)
		>	*-ðatU*	Eastern, Western

488 seven	*mU.ɔnza*	Kamba
	mU.gwanja	Eastern, Western
578 wide	*-ðanðau*	Kamba
	-aːrɪɪ	Eastern, Western

b. Kamba & Eastern versus Western

478 alone	*-nga, -nka*	Kamba, Eastern
	-iki, -ikɛ	Western (Ndia, Gichugu: *-mwɛ* 'one')

510 one hundred	CB *-gànà C.S. 774	>	*-(g)ana* 'hundred'	Kamba, Eastern
		>	*i.gana rɪmwɛ* 'one hundred'	most of Western

c. Kamba & Western versus Eastern

479 all	CB *-yóncè C.S. 2123	>	*-ɔðɛ*	Kamba, Western
		>	*-ɔndɛ*	Eastern

The following case of *small* also shows forms relating to Common Bantu; this item, however, divides Central Kenya Bantu into yet another set of groups (on phonological grounds), i.e. the western dialects are set apart from Kamba and the northeastern dialects on the one hand and from the southeastern dialects on the other hand:

(139)	575 small	CB *-nɟ̩ɲɟ̩ C.S. 1362	>	*nini*	Western	
			>	*niini:*	Muthambi, Chuka, Embu, Mbeere	South-East
			>	*ni:ni*	Meru, Igoji, Mwimbi, Tharaka, Kamba	N-East & Kamba

The items discussed thus far in the field 'Quantity and Quality' seem to refer to stable concepts, i.e. they have either been retained from Common Bantu or are considered to belong to the heritage of Central Kenya Bantu based on formal and distributional considerations. Borrowing is, in turn, attested to by a total of eight items. The following two cases in (140) suggest external borrowing from unknown donor languages:

(140)	487 six	(CB *-tándàtú C.S. 1667)	
		-tantatU, i.ðanðatU	Meru, Igoji
		-tanðatU, i.ðanðatU	Miutini (7-9), Nithi, Chuka, Embu, Mbeere, Tharaka
		-ðanðatU	Kamba; Western: Murang'a, Ndia, Gichugu
		-ðatatU	Western: Nyeri, Kiambu, Mathira
		-ðanzatU	Kamba (86, 90, 91, 94)
	579 narrow	*-cɛkɛ*	Meru, Igoji, Nithi, Chuka, Embu, Mbeere, Nyeri, Kiambu
		-sɛkɛ	Gichugu
		-cɛgɛ	Tharaka
		-ðɛkɛ	Kamba
		njɛkɛ	Murang'a, Ndia
		-cɛkɛɦa	Nyeri, Mathira

In both cases of (140) above, there exists a relatively large amount of partially divergent forms. None of the words listed under the keyword *six* in (140) relates to Common Bantu in a regular manner. We may, therefore, assume that horizontal processes are involved in this instance. Möhlig (1974a: 175) suggests that the uneven geographical distribution of the items listed under the keyword *six* is due to the influence by vernacular teaching. In the case of *narrow*, we may also assume external borrowing as the reason behind the occurrence of a relatively large amount of aberrant shapes.

Borrowing from Swahili and English is attested to by four items in this field:

(141)	474 number	Eng. *number*	> *namba*	all of CKB except for Tharaka
	520 sign	Sw. *alama*	> *arama*	Igoji (13), Mwimbi (20), Nyeri (100), Murang'a, Mathira, Ndia
			> *alama*	Kamba
		Eng. s*ign*	> *saaɪi*	Kamba (49, 62, 72, 75, 86)
	598 sufficient	Sw. *-tosha*	> *-tɔʃa*	Kamba (69)
	521 end	Sw. *mwisho*	> *mU.iːcɔ*	Embu, Mbeere
			> *mw.isɔ*	Kamba
			> *mw.iʃɔ*	Kamba
			> *mU.icɔ*	Gikuyu

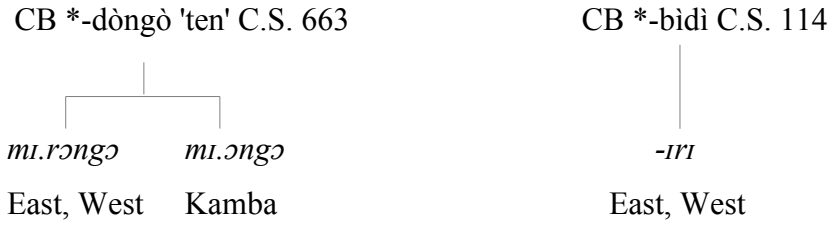
Next to borrowing from Swahili in one location of Kamba, the item *sufficient* also attests to downhill borrowing as well as to semantic change in comparison with Common Bantu: Most eastern and western dialects show a stem *-gan-* under this meaning, which is connected to the meaning *510 one hundred*. In Kamba, this stem is realized as *-an-*, which is regular to the remaining dialects. In fact, *-an-* in Kamba and *-gan-* in the remaining varieties relate to Common Bantu *-gànà C.S. 774 'one hundred'. A few locations in Kamba, however, show an additional form with the aberrant segment /y/, e.g. *-ɪyan-* in Masaku- and Kitui-Kamba. It seems likely that this form was borrowed from the languages on the slopes of Mount Kenya.
Downhill borrowing is attested to by four items in this semantic class. The following two cases of (142) show that, unlike all of its neighbors, Kamba seems to not have retained the relevant Common Bantu form but borrowed it from the languages of Mount Kenya instead:

(142) 481 to count CB *-tád- C.S. 1639

483 two CB *-bìdì C.S. 114

There is another case – the item *twenty* – attesting to downhill borrowing: In this instance, Kamba shows both a regular and an irregular shape in one and the same expression:

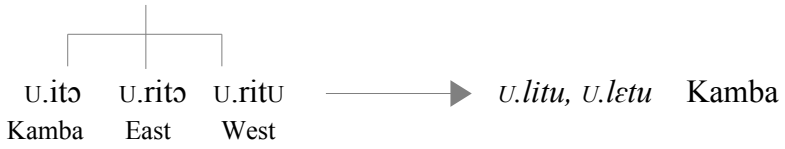
(143) 501 twenty *mɪ.rɔngɔ ɪ.ɪri* Eastern, Western → *mɪ.ɔngɔ ɪ.ɪli* Kamba



The term *mɪ.ɔngɔ ɪ.ɪli* in (143) may be considered an usual form in Kamba. On the one hand, it shows the regular item *mɪ.ɔngɔ,* relating to Common Bantu CB *-dòngò C.S. 663 'ten'. On the other hand, the irregular and borrowed item *ɪ.ɪli* 'two' occurs. In other words, Kamba borrowed the concept *twenty* from its neighbors but includes a regular form to express this notion.

The keyword *weight*, in turn, shows the coexistence of regular and irregular forms as well. In this case, borrowing from the uphill varieties seems likely:

(144) 512 weight CB *-dịtò C.S. 631



In sum, the majority of items reviewed in the field 'Quantity' seem to be stable, i.e. they show no signs of borrowing. Especially numerals may be considered most conservative:

475 many (CB *-yíngì C.S. 2082)	488 seven (*-gwan-)	574 big (CB *-nénè C.S. 1350)
476 crowd (*-kund- etc.)	489 eight (*-naan-)	575 small (CB *-nj̩j̩nj́ C.S. 1362)
478 alone (*-ka)	490 nine (CB *-kèndá C.S. 1093)	578 wide (*-adam-, *-canc-)
479 all (CB *-yóncè C.S. 2123)	510 one hundred	581 light (*-puc-)
482 one (CB *-múé C.S. 1326)	(CB *-gànà C.S. 774)	
484 three (CB *-tátù C.S. 1689)	511 to measure (*-cima)	
485 four (CB *-nà C.S. 1335)	517 different	
486 five (CB *-táánò C.S. 1662)	518 other (CB *-ngí C.S. 810)	

Table 112: Stable concepts in the field 'Quantity and Quality' in all of CKB

In contrast, the following items are considered unstable:

External borrowing	Internal borrowing (downhill)	Semantic change
474 number (Eng.)	481 to count	598 sufficient
487 six	483 two / 501 twenty	593 fat
578 narrow	512 weight	
520 sign (Eng., Sw.)		
521 end (Sw.)		
598 sufficient (Sw.)		

Table 113: Unstable concepts in the field 'Quantity and Quality' in all of CKB

The following conclusions may be summarized for this semantic domain: 17 items are stable all throughout Central Kenya Bantu. The sum comparison of all these items attests to the three-way split depicted in figure 36 above. Internal borrowing and homogenization due to mutual borrowing from external donors has not been able to bridge the genealogical three-way split of the group. The only item to show widespread use of an external loan is the keyword *474 number* (English). In most cases, parallel borrowing from external donors has resulted in a variety of divergent forms in Central Kenya Bantu (examples 140 and 141). In short, we may say that external influence has even increased the lexical differences between Western, Eastern, and Kamba, rather than having a leveling effect on Central Kenya Bantu as a whole. Internal borrowing, in turn, is limited to four items showing downhill diffusion from Mount Kenya into Kamba (examples 144-*146: 481 to count, 483 two, 501 twenty, 512* twelve). Again, no widespread homogenizing effect may be observed in regard to internal borrowing.

Total number of items	30	
Inconclusive cases	0	
	30	
Items affected by borrowing		10 (33,3%)
Downhill: 4 Swahili: 3 English: 2		
Average borrowability		**33,3%**
Loanword typology (Tadmor 2009)		20,5%

Table 114: Domains statistics for the field 'Quantity and Quality'

6. Communication

The field 'Communication' corresponds to the domain 'Speech and Language' in Haspelmath and Tadmor (2009a), which ranks in the lower third of the loanword typology, showing 22,3 percent of loans in the world's languages. In this study, the following 24 items are reviewed in this field:

134 voice (Sw. *sauti*)	145 to answer (Ma. *a-shúk*)	(Sw. *-somesha*, *-fundisha*)
135 to make noise (Sw. *kelele*)	146 to ask for	157 to learn (Sw. *-soma*, *-fundisha*)
136 to call (CB *-yít- C.S. 2017)	147 to help	159 to write (Sw. *-andika*)
137 to cry (CB *-dìd- C.S. 561)	148 to refuse	172 to curse (CB *-dụ̀m- C.S. 741)
138 language (Sw. *lugha*)	149 to permit (Sw. *ruhusa*)	173 to insult
139 to speak (CB *-néén- C.S. 1346)	153 to show (CB *-bón- C.S. 164)	(CB *-dụ̀m- C.S. 741)
140 to tell	154 to look at	174 lie
141 tale, story	155 to explain (CB *-bón- C.S. 164)	181 to deny (CB *-dég- C.S. 521)
144 to ask	156 to teach	

Table 115: Lexical items reviewed in the field 'Communication'

Figure 37 below, representing the lexical distances in the field 'Communication', reflects a rather unusual picture of Central Kenya Bantu: In the upper left corner of the diagram, Embu-Mbeere and Chuka are located in the vicinity of the western dialects of Gikuyu, Ndia, and Gichugu. The dialects on the eastern slopes of Mount Kenya are located in the lower left part of the picture. Kamba is divided into two groups. This division into two clusters, however, does not represent identifiable isoglosses, as the cluster depicted in the lower right corner of figure 37 comprises locations from all over the Kamba language area. In other words, the two-way split of Kamba depicted in figure 37 does not represent a specific geographic distribution of word forms, i.e. the locations grouped in the lower right corner of the picture are not located in a contiguous area but rather spread all over Kamba territory:

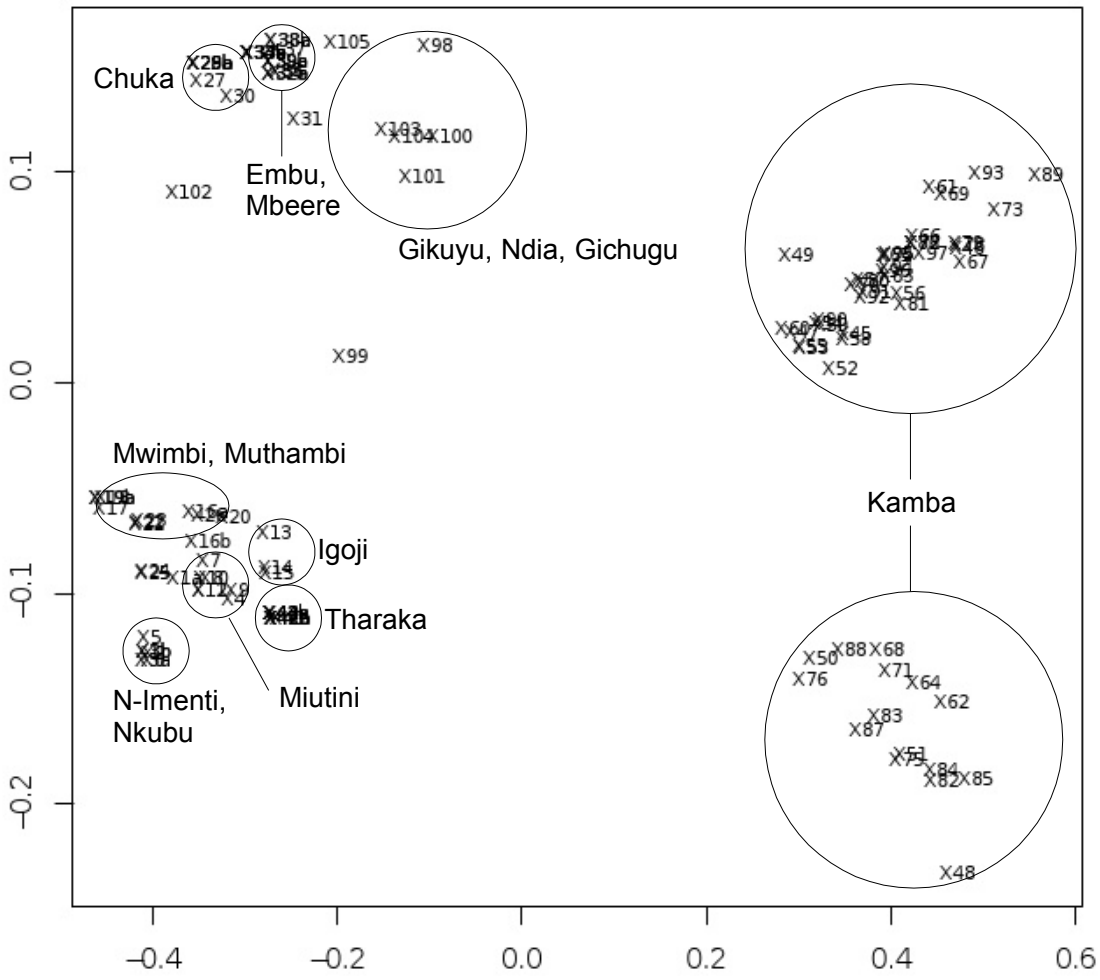


Figure 37: Multidimensional scaling of lexical distances in the field 'Communication'

Locations	**Region**
48, 50, 51	Masaku-West
64	Masaku-East
62, 68, 71	Yatta Plateau
82, 83, 84	Kitui-North (Garissa Road)
85, 87, 88	Kitui-Central

Table 116: Kamba outsiders in the field 'Communication'

The lack of clear isoglosses renders it impossible to identify the forms that are responsible for the two-way split in Kamba presented in figure 37 above. This particular split is not attested in any other semantic field and seems to be mainly due to chance in this case. Only one item can be identified, in which most of the relevant locations differ from the remaining locations in Kamba:

In the case of *to ask for*, the internal distances in Kamba are due to the usage of different concepts. While most Kamba locations show the form *-bɔ:ya,* also attested in a variety of dialects outside Kamba, the locations listed in table 116 above show the form *-ɪtya,* which literally means 'to call' and relates to CB *-yɟt- C.S. 2069:

(145) 146 to ask for *-ɪtya* **48**, **50**, **51**, 59, **62**, **64**, **71**, 75, **82-85**, **87**, **88**, 92

Two items relating to communication are non-diagnostic from a dialectometrical perspective, i.e. they show no synchronic variation. In the case of *to cry* this is due to retention of the relevant Common Bantu item by all of Central Kenya Bantu. For the keyword *to write*, there exists Common Bantu form *-yàndik- C.S. 1932. However, due to the fact that script is a relatively recent innovation in most African cultures, it seems more likely that the Central Kenya Bantu form *-andıka* goes back to Swahili:

(146)	137 to cry	*-(r)ı(r)a*	< CB *-dìd- C.S. 561
	159 to write	*-andıka*	< Sw. *-andika*

Again, bundled isoglosses are generally difficult to identify in this field. However, two items attest to the general separation between Kamba and the remaining varieties:

(147)	139 to speak	*-nɛːna*	Kamba	< CB *-néén- C.S. 1346
			v e r s u s	
		-aːria	Eastern, Western	
	140 to tell	*-tab(an)ia*	Kamba	
			v e r s u s	
		-ıːra, -ıra	Eastern, Western	

In the case of *to speak* in (147) above, only Kamba relates to Common Bantu, while all remaining varieties show a shared innovation. In regard to the item *to tell*, Kamba diverges from the remaining varieties of Central Kenya Bantu as well.
Kamba is further distanced from its neighbors due to borrowing from an outside donor, that has not affected most of the languages uphill in the following case (148):

(148)	154 to look at	**Kamba**	**vs.**	**Eastern, Western**	
		-siːsya		*-tɛg-*	Meru
		-sabisya		*-raið-*	Igoji, Nithi, Tharaka
		-ʃaisya		*-rʊria*	Embu, Mbeere
		-ʃiːsya		*-rʊra*	Western
	possibly connected:	*-sʊbisya*		*-cʊːðırıria*	Chuka, Mbeere (38, 39)
		-sʊbilya		*-ðʊ-ðırıria*	Mbeere

Example (148) shows, on the one hand, that Kamba seems to have been influenced by borrowing processes under the keyword *to look at*, that have not affected the remaining varieties. On the other hand, (148) also shows that Embu-Mbeere agrees with its western neighbors in the use of the stem *-rʊr-*; moreover, there seems to be a (horizontal) connection between Chuka and Mbeere in regard to the item *to look at*:
There is no indication that borrowing has been involved regarding the two items *-rʊria* (Embu-Mbeere) and *-rʊr a* (Western) in (148). These items attest to the relatively low distances between the western dialects and their immediate neighbors Embu and Mbeere.

Figure 37 above shows, moreover, that Chuka is relatively close to its neighbors Embu and Mbeere in this field. The items *-cʊ:ðɪrɪria* and *-ðʊ-ðɪrɪria* in (148) attest to this fact. Possibly, lexical diffusion has contributed to the relatively low distances between Chuka and its neighbors Embu and Mbeere. The aberrant occurrence of /c/ in *-cʊ:ðɪrɪria* may point towards this conclusion. On a side note, there may be a connection between *-cʊ:ðɪrɪria* in Chuka and Kamba *-sʊbilya*, which remains, however, to be specified.
There are two more items uniting Embu-Mbeere with the western dialects, while separating the rest of Central Kenya Bantu. In these two instances, the connection between Embu-Mbeere and its western neighbors seems to be due to inheritance, as there is no indication of borrowing:

(149)	141 tale	*rʊ.ganɔ*	Embu, Mbeere, Western
			v e r s u s
		rʊ.gɔnɔ	Eastern: Meru, Igoji, Nithi, Chuka, Tharaka
		ngɛwa, ʊ.kɛwa	Kamba
		wanɔ, mbanɔ	Kamba
	174 lie	*ma.vɛ:ni*	Embu, Mbeere
		ma.ɦɛ:ni	Mathira
		i.ɦɛ:ni	Nyeri (98)
		kʊ.ɦɛ:nania	Nyeri, Kiambu, Murang'a, Ndia, Gichugu
			v e r s u s
		ʊ.rɔngɔ	Meru, Igoji, Nithi, Chuka, Tharaka
		ʊ.bʊngʊ	Kamba

In the case of *tale* listed in (149) above, Embu-Mbeere and the western dialects diverge partially from the eastern varieties and show full divergence in comparison with Kamba. The keyword *lie*, in turn, shows full divergence in the comparison of Embu-Mbeere-Western versus all remaining varieties. In both cases, the forms listed for Embu-Mbeere-Western may be considered regular, suggesting geneaology as the reason behind this instance of congruence.
In the case of *to explain* in the following example (150), Embu-Mbeere, Chuka, and the western dialects are unique in showing the form *-ta-rɪria,* most likely a shared innovation. Kamba and Tharaka use Swahili loans in this case, while the northern dialects of Meru, Igoji, and Nithi relate to Common Bantu:

(150)	155 to explain		*-ta-rɪria*	Embu, Mbeere, Western
				v e r s u s
	CB *-bón- C.S. 164	>	*-ɔnɛ:ria, -ɔnania*	Meru, Igoji, Nithi
	Sw. *-eleza*	>	*-ɪrɪ:ca, -ɪrɪ:ja, -ɪrɪ:ða*	Igoji (14), Mwimbi (20, 21), Embu (31), Tharaka
	Sw. *-eleza*	>	*-ɛlɛsɪa*	Kamba

A total of 14 items are indicative of borrowing in this class. I mentioned above in the context of example (148) that Kamba (and, possibly, Chuka and Mbeere) has been influenced by an unknown external donor under the keyword *to look at*. The most influential donor in this semantic domain is, however, Swahili, which is the donor of a number of loanwords relating to communication. Borrowing from Maasai is only attested under the keyword *145 to answer* (this case has been discussed above in the field *3. Motion* under the keyword *094 to return*). Swahili loanwords occur under the following items:

(151)	134 voice	Sw. *sauti*	>	*ðauti*	Gikuyu: Nyeri, Kiambu
	135 to make noise	Sw. *kelele*	>	*-kʊna kɛlɛlɛ*	Kamba (45, 48, 50, 61)
	138 language	Sw. *lugha*	>	*luga*	Nyeri (98)
	147 to help	Sw. *saidia*	>	*-tɛːðia, -tɛːðɛːria*	Eastern
			>	*-tɛiðia*	Western
			>	*-tɛðya, -tɛðɛɛsya*	Kamba
	149 to permit	Sw. *ruhusa*	>	*lʊʊða*	Kamba (57, 61)
	155 to explain	Sw. *-eleza*	>	*-ɪrɪːca, -ɪrɪːja, -ɪrɪːða*	Igoji (14), Mwimbi (20, 21), Embu (31), Tharaka
			>	*-ɛlɛsɪa*	Kamba
	156 to teach	Sw. *-somesha*	>	*-ðɔːmɪðia*	most of Eastern, Western
			>	*-sɔmɛðya, -sɔmɪðya*	Kamba
		Sw. *-fundisha*	>	*-bʊndɪʃa*	Kamba
			>	*-bundiðia*	Murang'a
	157 to learn	Sw. *-soma*	>	*-ðɔːma*	Eastern
			>	*-ðɔma*	Western
			>	*-sɔma*	Kamba
	159 to write	Sw. *-andika*	>	*-andɪka*	all of CKB

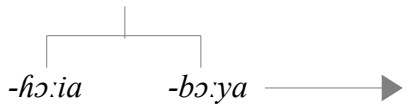
Example (151) shows that Swahili influence has been severe in this field regarding the amount of affected items. However, in distributional terms, only the items *to help*, *to write, to*

teach, and *to learn* show widespread use of Swahili loans. The item -*andıka* (*to write*) represents a general homogenization of all varieties due to Swahili influence. In contrast, parallel borrowing of the Swahili verb -*saidia* (*to help*) contributes to the synchronic three-way split between Eastern, Western, and Kamba. The item *to learn* may be interpreted in both ways: On the one hand, the mutual adoption of the Swahili word -*soma* has caused a general homogenization. In other words, without Swahili contact, no affiliation would exist between the different dialects in regard to the concept of reading. On the other hand, parallel borrowing of this particular Swahili word has resulted in a phonological three-way split, which – so to speak – neutralizes the homogenization in regard to the keyword *to learn*. As most Swahili loans are, however, restricted to only a few dialects each, language contact with Swahili seems to have mostly diversified the entire group rather than having a leveling effect on Central Kenya Bantu as a whole in this semantic domain.
The extent of internal borrowing is much lower in regard to the number of affected items. Consequently, internal borrowing has never been strong enough to bridge the gap between the three major groups that divide Central Kenya Bantu. The following items in (152) attest to downhill borrowing:

(152)	**Mt. Kenya**		**Kamba**
144 to ask	-*ʊːria*	>	-*ʊlya*
148 to refuse / 181 to deny	-*rɛga*	>	-*lɛa*
153 to show	-*ɔnırıra* (Mathira)	>	-*ɔnanɛɛlya*

Montane and uphill borrowing are, in turn, shown by one item each. In the context of example (148) above, I mentioned that Embu-Mbeere and Chuka share the two forms -*cʊːðırıria* and -*ðʊ-ðırıria* under the keyword *154 to look at*. The restricted distribution of these items as well as the aberrant occurrence of /c/ suggest borrowing. The items have, possibly, been diffused among these varieties (montane borrowing) after having been introduced from an external source.
The case of *to ask for* shows an interesting instance of uphill borrowing from Kamba into Chuka, Embu, and Mbeere. It is insofar an unsual instance of homogenization as it has resulted in the convergence of Chuka and the western neighbors due to one-sided influence on the Chuka by a third party, namely Kamba. In other words, Chuka has borrowed from Kamba, resulting in a homogenization between Chuka and Kamba on the one hand. On the other hand, Chuka coincidentally shows synchronic agreement with their western dialects under this keyword. The complex situation described in this paragraph may be summarized as follows:

(153) 146 to ask for *-po-



Kamba -*bɔːya* : Chuka -*bɔːya* = identical due to language contact between Kamba and Chuka

Chuka -*bɔːya* : Western -*ɦɔːia* = similar due to language contact between Kamba and Chuka (!)

Western -*ɦɔːia* : Kamba -*bɔːya* = similar due to inheritance

In sum, eight items may be classified as referring to stable concepts in all of Central Kenya Bantu:

136 to call (CB *-yít- C.S. 2017)	140 to tell (*-ida, *-tap-)	173 to insult (CB *-dụ̀m- C.S. 741)
137 to cry (CB *-dìd- C.S. 561)	141 tale (*-gan-)	174 lie (*-pen-, *-dong- / *-pung-)
139 to speak (CB *-néén- C.S. 1346)	172 to curse (CB *-dụ̀m- C.S. 741)	

Table 117: Stable concepts in the field 'Communication' in all of CKB

Kamba shows borrowing in the following items:

External borrowing	**Internal borrowing (downhill)**
135 to make noise (Sw.)	144 to ask
147 to help (Sw.)	148 to refuse / 181 to deny
149 to permit (Sw.)	153 to show
154 to look at	
155 to explain (Sw.)	
156 to teach (Sw.)	
157 to learn (Sw.)	
159 to write (Sw.)	

Table 118: Unstable concepts in the field 'Communication' in Kamba

The western dialects, Embu, Mbeere, and Chuka have been affected by borrowing in the following cases:

External borrowing	**Internal borrowing**
134 voice (Sw.)	146 to ask for (uphill into Chuka)
138 language (Sw.)	154 to look at (montane)
147 to help (Sw.)	
154 to look at (?)	
155 to explain (Sw.)	
156 to teach (Sw.)	
157 to learn (Sw.)	
159 to write (Sw.)	

Table 119: Unstable concepts in the field 'Communication' in Western, Embu-Mbeere, and Chuka

The remaining varieties – Eastern – attest to external borrowing in the following cases:

147 to help (Sw.)	156 to teach (Sw.)	159 to write (Sw.)
155 to explain (Sw.)	157 to learn (Sw.)	

Table 120: Unstable concepts (external borrowing) in the field 'Communication' in Eastern

The following conclusions may be drawn from the qualitative discussion of the semantic domain 'Communication':
On the one hand, Kamba is set apart from all its neighbors based on divergence; on the other hand, Kamba has been exclusively affected by an unknown donor and shows unique ways of borrowing from Swahili. In short, inheritance and contact have both contributed to the

separation of Kamba from all the remaining varieties. Downhill borrowing has not been severe enough to bridge this gap.
External borrowing, it seems, has contributed to the synchronic diversity within Central Kenya Bantu in this field. Only a minority of Swahili loans relating to communication has spread enough to unite all of the relevant varieties. In most cases, Swahili has only affected a limited number of dialects with Kamba as well as Western, Embu, Mbeere, and Chuka being influenced most severely.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	exclusive CB retention in Kamba (ex. 147)	exclusive contact w/ external donor in Kamba (ex. 148), Swahili influence (ex. 151)	---
Chuka-Embu-Mbeere	low	shared innovation (ex. 148)	mutual contact w/ external donor (ex. 148)	---
Embu-Mbeere-Western	low	shared innovation (ex. 148)	excluded from Swahili contact (ex. 150)	---

Table 121: Summary of the qualitative analysis in the field 'Communication'

Total number of items	24	
Inconclusive cases	0	
	24	
Items affected by borrowing	Kamba	12 (50%)
Downhill: 4 Uphill: 1 Montane: 1 Swahili: 9	West / Embu-Mbeere / Chuka	9 (37,5%)
	Eastern	5 (20,8%)
Average borrowability in CKB		**36,1%**
Loanword typology (Tadmor 2009)		22,3%

Table 122: Domain Statistics for the field 'Communication'

7. Time

In the loanword typology, this semantic field shows a total of 23,2 percent of loanwords. The relatively high amount of borrowed lexemes identified by the loanwords typology project might be due to the inclusion of names for weekdays listed by Haspelmath and Tadmor (2009a). In this study, the following twelve items are reviewed:

522 time	526 daytime	531 tomorrow
(CB *-píndí C.S. 1572, Sw. *saa*)	527 night	532 yesterday (CB *-gòdò C.S. 842)
523 year (CB *-yàkà C.S. 1904)	528 morning	533 the past (Ma. ?)
524 week	529 evening (CB *-gòdò C.S. 842)	
525 day (CB *-tʊ́kù C.S. 1864)	530 today	

Table 123: Lexical items reviewed in the field 'Time'

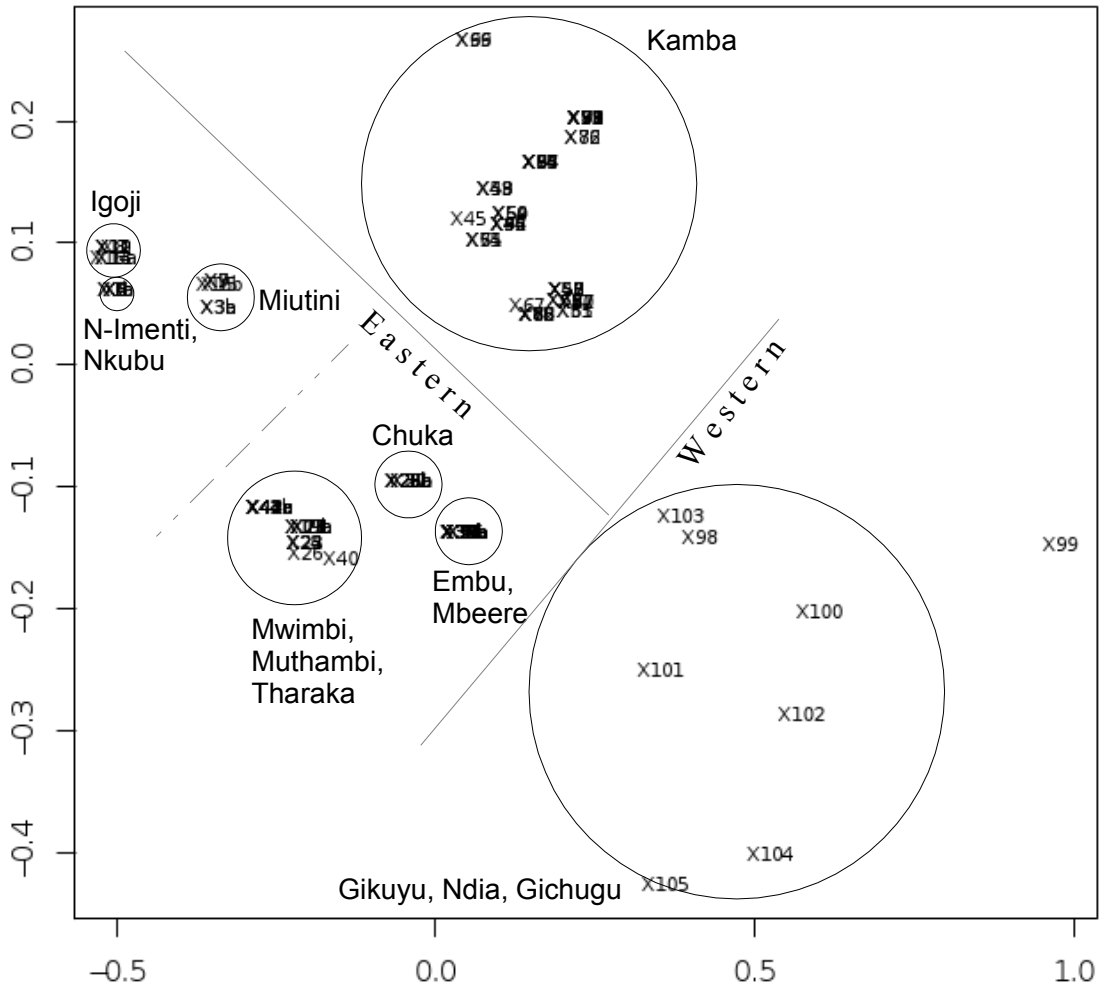


Figure 38: Multidimensional scaling of lexical distances in the field 'Time'

The multidimensional scaling of the dialectometrical results in the field 'Time' in figure 38 above shows an unusual picture of the lexical distances within Central Kenya Bantu. While the overall outcome suggests a three-way split (see figure 29 in section 3.2.1), the group seems to be divided into four major clusters in the field 'Time':

Kamba is, as usual, set apart from all its neighbors. The same holds for the western dialects of Gikuyu, Ndia, and Gichugu, situated in the lower right part of the figure 38[25]. The eastern dialects are, in turn, divided into two groups: On the one side, we find the northeastern dialects of Meru (Imenti, Nkubu, Miutini) and Igoji. The remaining varieties on the eastern slopes of Mount Kenya, Nithi (Mwimbi, Muthambi), Tharaka as well as Embu-Mbeere and Chuka show a considerable distance to all their neighbors in the east as well as the west. In short, the field 'Time' attests to a four-way split of Central Kenya Bantu.
In two cases, all of Central Kenya Bantu relates to Common Bantu. Under the keyword *night*, Tharaka diverges from all its neighbors due to unclear reasons. The item *year*, in turn, shows a total of four phonologically divergent forms:

(154)	527 night	CB *-tʊ̨kù C.S. 1864	>	*ᴜ.tukᴜ*	all of CKB except for
			>	*ᴜ.tugu*	Tharaka
	523 year	CB *-yàkà C.S. 1904	>	*mᴜ.a:ka*	Meru, Nithi, Chuka, Embu, Mbeere
			>	*mᴜ.anka*	Miutini, Igoji, Tharaka
			>	*mw.aka*	Kamba, Nyeri, Kiambu, Mathira
			>	*mᴜ.aka*	Murang'a, Ndia, Gichugu

The two items in (154) above attest to a general lack of bundled isogloss in this field, which also holds for many of the remaining items. There is, however, a number of entries in the lexical data base that can be considered attestations of the particular distances presented in figure 38 above, i.e. the four-way split of Central Kenya Bantu. Again, the synchronic picture is based both on inheritance and different borrowing processes:
The western dialects are set apart from all neighboring languages in regard to a total of six items. The following example (155) shows that all of Central Kenya Bantu relates to Common Bantu under the keyword *yesterday*, with the exception of the western varieties, that attest to an innovation. The item *ɦwaɪ-ɪnɪ* under the keyword *evening* is regular and widespread in Western and, possibly, also an innovation:

(155)	532 yesterday	CB *-gòdò C.S. 842	>	*ɪ.gɔrɔ*	Eastern
			>	*ɪ.ɔɔ*	Kamba
				v e r s u s	
				i.ra	Western

25 Again, the high diversity within the western cluster is due to the low amount of data available for Gikuyu, Ndia, and Gichugu.

529 evening	CB *-gòdò C.S. 842	>	*-gɔrɔ*	Eastern
		>	*ɪ.ɔɔ*	Kamba
			v e r s u s	
			ɦwaɪ-ɪnɪ	Western

The following cases in (156), in turn, show that the western dialects of Gikuyu, Ndia, and Gichugu have been distanced from the remaining varieties due to exclusive language contact with Swahili and English respectively:

(156)	522 time	Sw. *saa*	>	*ðaa*	Kiambu, Gichugu
			>	*ma.ðaa*	Mathira, Ndia
					all others: *-giːta* or forms relating to CB *-píndí C.S. 1572
	524 week	Eng. *week*	>	*wiki*	Nyeri, Murang'a, Ndia
					all others: forms relating to *-uːma* 'to finish'
	525 day	Sw. *siku*	>	*ðikU*	one location in Nyeri
					all others: *mU.ðɛŋa* or forms relating to CB *-tʊ́kù C.S. 1864
	526 daytime	Sw. *saa*	>	*mU.ðaa*	one location in Nyeri
					all others: *mU.ðɛŋa*

In the additional case of *528 morning,* Kiambu and Gichugu show the forms *rU.cinɪ* and *rU.sinɪ*, both probably borrowed; the former also appears under the meaning *529 evening*.
In sum, the western dialects shown an innovation under the keyword *yesterday* and, possibly, under the keyword *evening* as well (see example 155); the fact that Western is separated from all its neighbors in this field, however, seems to be mainly based on exclusive borrowing from Swahili and English. As the other dialects have not been affected by Swahili in contact in this field, we may conclude that the relevant loans have spread into the western dialects relatively recently, i.e. in colonial times. On a side note, the fact that the loans shown in (156) above are not attested for every location of Western is reflected in the diverse picture of this cluster in figure 38 above.
The northeastern dialects, Imenti, Nkubu, Miutini (all Meru), and Igoji are set apart from the rest of Central Kenya Bantu based on four lexical items. In two cases, they seem to have diverged from their neighbors:

(157)	529 evening	CB *-gòdò C.S. 842	>	*ᴜ.gɔrɔ*	Meru, Igoji (+ Tharaka)
				v e r s u s	
			>	*kɪ.ᴜ.gɔrɔ*	Nithi
			>	*w.ɪɔɔ*	Kamba
			+ unrelated forms in Western, Embu, Mbeere, Chuka		
	530 today	*naa:rua*		Meru, Igoji	
		ᴜ.mᴜnðɪ		all other Eastern, Kamba, Western	

In the case of *evening* in (157) above, Meru and Igoji (coincidentally Tharaka as well) diverge from the remaining varieties. In the case of *today*, all except for Meru and Igoji show the widespread and regular – thus, most likely genuine – form *ᴜ.mᴜnðɪ*, while the northernmost varieties show an unrelated, yet regular and widespread, word. It seems safe to assume that the differences between Meru and Igoji versus the remaining varieties described in (157) are due to divergence.

The Meru dialects Imenti, Nkubu, and Miutini also differ from all their neighbors under the keyword *533 past* by showing the form *kɛŋa*, according to Möhlig (1974a: 178) a word of Maasai origin. In the case of the keyword *tomorrow*, borrowing may be assumed for all eastern and western dialects based on the relatively high amount of diversity in the following example (160). Again, Meru and Igoji differ from all remaining varieties:

(158)	531 tomorrow	*rᴜᴜjᴜ*	Meru, Igoji	
			v e r s u s	
		rᴜᴜ	Nithi	East
		rᴜ.ᴜyᴜ, rᴜ:yᴜ	Chuka, Embu, Mbeere	East
		rᴜ.uyu	Tharaka	East
		rᴜ.ciᴜ	Nyeri, Mathira	West
		rᴜ.siᴜ	Murang'a, Ndia, Gichugu	West
		ᴜnɪ	Kamba	

In short, Meru and Igoji seem to have diverged from the rest of Central Kenya Bantu (example 157). Parallel borrowing from an outside language has additionally distanced the northernmost varieties from their neighbors, as they show a unique form in example (158). On a side note, example (158) may be understood as an indication of a three-way split of Central Kenya Bantu in regard to the item *tomorrow*: East versus West versus Kamba. In fact, the item *tomorrow* in (158) above is the only entry in the field 'Time' that separates Kamba from all the remaining varieties in this field. In this case, it seems that Kamba has been unaffected by external borrowing as all locations show a regular – therefore, presumably genuine – form *ᴜnɪ*.

Example (158) above also shows that Embu, Mbeere, and Chuka are unique in showing the form *rᴜ.ᴜyᴜ*, i.e. they are phonologically different from the rest of Eastern under the keyword *tomorrow*. As borrowing may be assumed for all the relevant forms, we may also conjecture

that the phonologically unique form in Embu-Mbeere-Chuka is due to mutual borrowing in these varieties. In the case of the keyword *evening*, in turn, Embu-Mbeere and Chuka seem to have been exclusively affected by borrowing, as the aberrant occurrence of /b/ suggests:

(159) 529 evening *nabɔı, kı.bɔːı* Embu, Mbeere, Chuka (+ one location of Tharaka)

v e r s u s

-gɔrɔ	Eastern	< CB *-gòdò C.S. 842
-ıɔɔ	Kamba	< CB *-gòdò C.S. 842
ɦwaı-ımı	Western	innovation, cf. Benson (1964: 123)

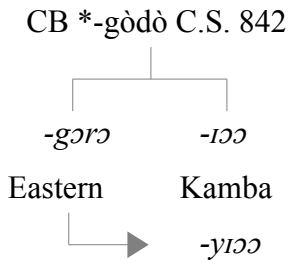
Internal borrowing is shown by two lexical items in this field. The keyword *time* attests to borrowing into Chuka – both Embu-Mbeere and Kamba are possible donors:

(160) 522 time CB *-píndí C.S. 1572

>	*-ɦinda*	Western
>	*-vinda*	Embu, Mbeere
>	*-binda*	Kamba
≠	*-binda*	Chuka
	(expected regular form: *-*ɦinda*)	

Downhill borrowing from the eastern foothills of Mount Kenya into Kamba is shown by the item *yesterday*. Kamba shows both a regular and an irregular form side by side:

(161) 532 yesterday



The lexical items reviewed in this field may be classified as follows: In total, four items refer to stable concepts in all of Central Kenya Bantu: *523 year* (CB *-yàkà C.S. 1904), *527 night* (CB *-tʊ́kù C.S. 1864), *528 morning* (*-dok-), and *530 today* (*-naa-, *-mun-*).*
Western shows external borrowing in regard to the following items:

522 time (Sw.)	525 day /	530 tomorrow (Sw.)
524 week (Sw.)	526 daytime (Sw.)	

Table 124: Unstable concepts in the field 'Time' in Western

The eastern dialects have been affected by borrowing in four instances in this field:

External borrowing	Internal borrowing
529 evening	522 time (uphill)
531 tomorrow	
533 the past (Ma.)	

Table 125: Unstable concepts in the field 'Time' in Eastern

In Kamba, finally, only the item *532 yesterday* is affected by downhill borrowing from the slopes of Mount Kenya.
In sum, the field 'Time' attests to a general four-way split of Central Kenya Bantu as depicted in figure 38 above. This particular division may be attributed to the following historical processes:

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	morph. divergence (ex. 154)	only variety unaffected by external borrowing (ex. 158)	downhill borrowing (ex. 161) not sever enough to bridge the divide Kamba vs. Rest
West vs. Rest	high	innovation in West (ex. 155)	exclusive Swahili and English contact in West (ex. 156)	Western distanced from the rest by external contact in colonial times
Meru-Igoji vs. East	high	morph. divergence (ex. 157)	unique way of external borrowing (ex. 158) and exclusive Maasai contact in Meru-Igoji (*533 past*)	Meru-Igoji distanced from the other eastern varieties by external contact
Embu-Mbeere-Chuka	low	-	mutual contact w/ external donor (ex. 158, 159)	-

Table 126: Summary of the qualitative analysis in the field 'Time'

Total number of items	12	
Inconclusive cases	0	
	12	
Items affected by borrowing	Kamba	1 (8,3%)
Downhill: 1 Uphill: 1 Swahili: 4 Maasai: 1	Western	4 (33,3%)
	Eastern	4 (33,3%)
Average borrowability in CKB		**25,0%**
Loanword typology (Tadmor 2009)		23,2%

Table 127: Domain Statistics for the field 'Time'

8. Basic Actions, Technology, and Commerce

In this domain, Haspelmath and Tadmor (2009a) identify a total of 23,8 percent of loanwords in their sample languages, i.e. this field ranks approximately in the middle of the loanword typology. In this study, 39 items are reviewed:

076 medicine (Sw. *dawa*)	354 to work (Sw. *-saidia*, *-sukuma*)	*-chonga*)
086 to rest	355 to try (CB *-gèd- C.S. 797)	367 to forge
087 to wait	356 to pull	368 iron (Sw. *chuma*)
088 to stand	357 to push	369 to dilute
(PB *-dùng- 1201 'be straight')	(CB *-tɟnd- C.S. 1758, Sw. *-sukuma*)	370 to paint (Sw. *-paka rangi*)
090 to squat	358 to put into	372 market (Sw. *soko*)
097 to take, recieve	(CB *-bíík- C.S. 122)	373 to buy (CB *-yùd- C.S. 2149)
098 to seize (CB *-kúát- C.S. 1172)	359 to turn, revolve	374 to sell
099 to lay down	(CB *-pìndud- C.S. 1529)	375 to exchange (Eng. *to exchange*)
102 to throw	361 to break	376 debt (CB *-dàndú C.S. 497)
150 to give (CB *-nɟnk- C.S. 1363)	(CB *-bʊ̀nj- C.S. 233, Sw. -vunja)	377 to pay (CB *-dìp- C.S. 589)
350 to begin	362 to tear (inconclusive)	378 money (Sw. *pesa*)
(CB *-yàmb- C.S. 1914, Sw. *-anza*)	363 to divide (Sw. *-gawanya*)	379 cheap (Sw. *rahisi*)
351 to finish	364 to lift	380 expensive (Ma. *a-gól*)
352 to do (CB *-bíík- C.S. 122)	365 to mould (CB *-búmb- C.S. 199)	
353 work	366 to carve (Cush. **sup,* Sw.	

Table 128: Lexical items reviewed in the field 'Basic Actions, Technology, and Commerce'

The multidimensional scaling of the dialectometrical results yields the picture presented in figure 39 below. Again, the Central Kenya Bantu languages show a general three-way split, i.e. the western dialects and Kamba, respectively, are set apart from the remaining varieties. Within the dialects in the eastern foothills of Mount Kenya, Embu and Mbeere show the lowest distance to Gikuyu, Ndia, and Gichugu. They are, however, still considerably far apart from their western neighbors and most closely affiliated with their eastern neighbors.

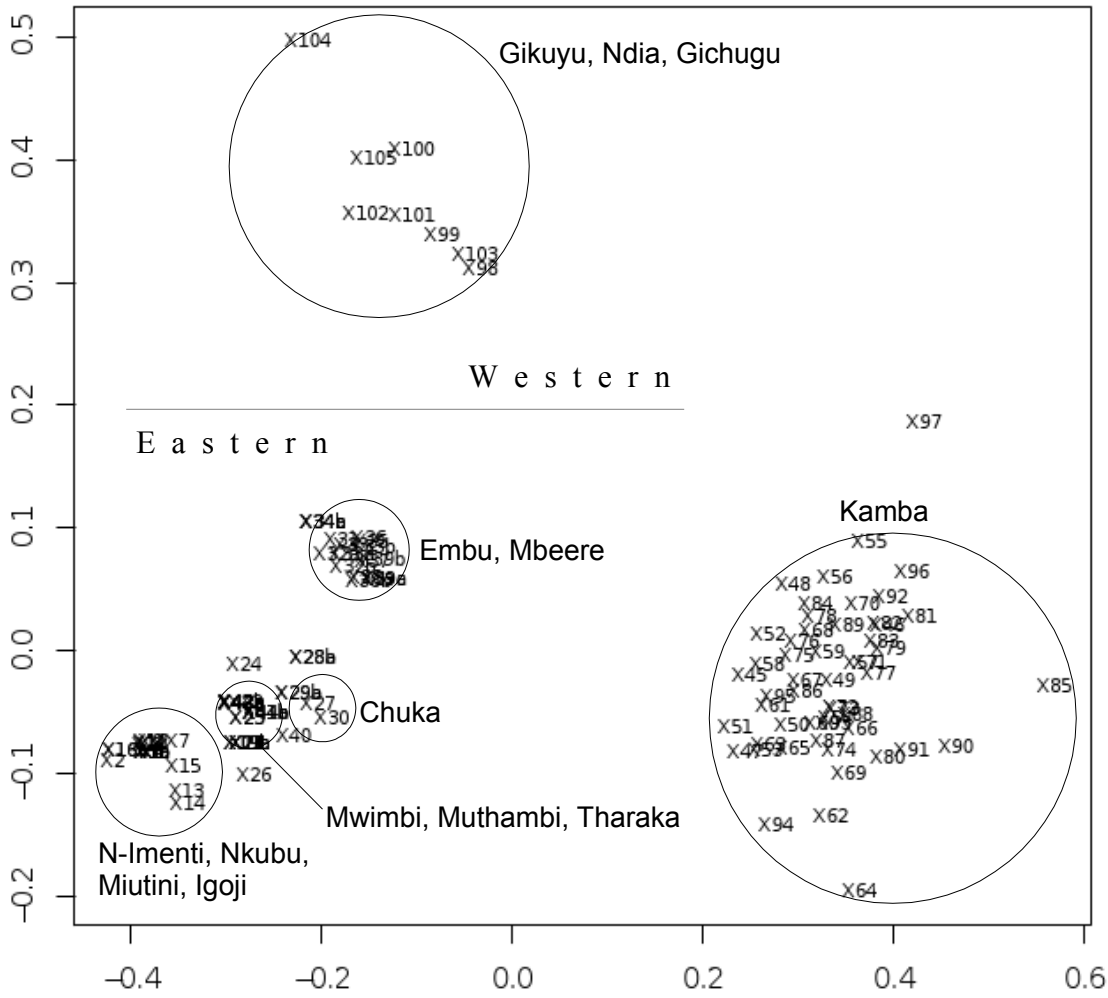


Figure 39: Multidimensional scaling of lexical distances in the field 'Basic Actions, Technology, and Commerce'

There is a number of items showing a particularly high degree of diversity in this field. On the one hand, this seems to be due to a difference in concepts. On the other hand, we may also assume that the relatively high amount of divergent forms may be due to low frequency of usage in some instances.

The keyword *099 to lay down*, for example, shows a total of thirteen distinct word forms. The high amount of forms is partially due to the fact that different notions are used to express this concept, e.g. *-ɪ:ka nðɪ* 'to throw down' (Meru) or *-kɔmia* 'to put to sleep' (Gikuyu).

The term *369 to dilute* yields a total of 31 distinct items. In this case, we are safe to assume that such a technical concept is used on a daily basis only by specialists, such as smiths, whereas it is rarely heard among the general public. For this reason, many speakers seem to not make a clear distinction between such technical terms. The concept of forging metal (*367 to forge*), for example, is expressed by different notions, such as *238 to pound*, *367 to mould*, or *369 to dilute*. In total, conceptual differences are to be considered for the following six items in this semantic field: *099 to lay down, 354 to work, 366 to carve, 367 to forge, 369 to dilute*, and *380 expensive.* All of these cases attest to different borrowing processes, which are discussed in this section.

There are only two items in this semantic domain relating all of Central Kenya Bantu to Common Bantu:

(162)	357 to push	CB *-tị́nd- C.S. 1758	>	*-tindıka*	all of CKB
	377 to pay	CB *-dìp- C.S. 589	>	*-rıɦa, -rıva, -(r)ıba*[26]	all of CKB

In general, bundled isoglosses are, yet again, difficult to identify in this field. There is only one item attesting to the general three-way split of Central Kenya Bantu depicted in figure 39 above, i.e. Eastern, Western, and Kamba show unrelated forms each:

(163)	351 to finish	*-ðirị̂a*	Eastern	< *-cid-
		-rıkia, -rɪːkia	Western	< *-dik-
		-mina	Kamba	< *-min-

Kamba is set apart from all its neighbors on the basis of ten lexical items. In the following four instances in (164), Kamba uses forms unrelated to the ones shown in the remaining varieties. In the case of *to turn* in (164), Kamba is the only variety related to Common Bantu. In the case of *to try*, in contrast, Kamba shows an innovation:

(164)	086 to rest	*-ðʊmʊa, -ðʊmwa*	Kamba
			v e r s u s
		-ɦuːrʊka	Western
		-vuːrʊka	Embu, Mbeere
		-nɔgɔka	all remaining varieties, cf. *055 to be tired*
	355 to try	*-tata*	Kamba
			v e r s u s
		-gɛːria	all remaining varieties
			(< CB *-gèd- C.S. 797), except for
		-bɛːria	Nithi, Chuka
	359 to turn	*-bındʊa*	Kamba (< CB *-pìndud- C.S. 1529)
			v e r s u s
		-gaːrʊra, -garʊrʊka, etc.	Eastern, Western
	374 to sell	*-ðɔɔʃa* and *-ta*	Kamba
			v e r s u s
		-ɛndia	Eastern, Western

The following two cases of (167), in turn, show that Kamba agrees with some of the remaining varieties on the one hand. On the other, it disposes of additional – unrelated – forms, which sets it apart from the rest of Central Kenya Bantu:

26 All forms treated as regular / identical based on the correspondence series *R_1 and *P_1 (see section 3.1.2)

(165) 373 to buy PB *-gùd- 1482 (Bastin et al. 2002[27])

-gʊːra	Eastern
-gʊra	Western
-ʊa	Kamba

+ unrelated form in Kamba: *-ðɔɔa*, cf. *374 to sell*

376 debt (CB *-dàndú C.S. 497 > *ɪ.randʊ* in Meru, Igoji, Nithi, Chuka, Tharaka)

ðiːrɪ	Embu, Mbeere, Western
ðiɪ	Kamba

+ unrelated forms in Kamba: *ɪ.kɔani*, *ɪ.kʊani*, cf. *175 lawsuit*

In the case of *to buy* in (165) above, Kamba is unique in showing *-ðɔɔa.* In the case of *debt*, Embu-Mbeere, Western, and Kamba show shared innovations. In addition, Kamba shows the two items *ɪ.kɔani* and *ɪ.kʊani*, that also occur under the keyword *lawsuit,* borrowed from English 'court'. The example of *debt* seems to reveal a difference in concepts in Kamba, i.e. *debt* versus *lawsuit,* possibly relating to the concept of 'obligation'. In total, there are three items that attest to conceptual differences between Kamba and the remaining varieties. In all of these cases, borrowing is involved:

(166) 354 to work

-ruta wɪːra	'to work'	most of Eastern, Western	
-kʊna wɪa	'to work'	Kamba, cf. *164 to hit, strike*	
-ɪka	'to do'	Kamba (51, 57, 59), cf. *352 to do*	
-tɛðya	'to help'	Kamba < Sw. *-saidia*	
-ðʊkʊma	'to push'	Kamba < Sw. *-sukuma*	

379 cheap Sw. *rahisi*

>	*raici*	Eastern	
>	*raiði*	Western	
>	*laisi*	Kamba	
+ additional form in Kamba:			
-ðɔɔa mʊnini 'buy small'			

380 expensive Ma. *a-gól*

>	*gɔrɔ*	'high'	Eastern, Western	
>	*-ʊlʊ*	'high'	Kamba	
+ additional forms in Kamba:		*-biŋa*	'strong'	
		-nɛnɛ	'big'	
		-ʊmʊ	'firm, hard'	

27 The form relevant *-yùd- C.S. 2149 constructed by Guthrie (1967-71) seems poorly reliable in historical terms.

Under the keyword *to* work in (166), Kamba disagrees with its neighbors: While the eastern and western dialects concur in using the verb *-ruta* in this context, Kamba uses the form *-kʊna* with the literal meaning *to hit*. Next to this item, Kamba uses two Swahili loans with different meanings as well as the genuine form *-ɪka* 'to do'. In the remaining two cases of (166) Kamba has borrowed from Swahili and Maasai, respectively – just like all its neighbors. However, next to the concepts going back to Swahili, Kamba uses additional – genuine – forms to express the notions of *cheap* and *expensive*, respectively.
The item *to work* in (166) above shows that Kamba has been exclusively affected by Swahili contact in this instance. The case of *market*, in contrast, shows a Swahili loan going back to *soko* in all of Central Kenya Bantu except for Kamba, which seems to use a genuine form:

(167)	372 market	*ndʊɲʊ*	Kamba (genuine)
		-ðɔkɔ	Eastern, Western (< Sw. *soko*)

In sum, Kamba is set apart from all its neighbors based on three factors. First, it seems to have diverged from the rest of Central Kenya Bantu (example 164). Second, there are conceptual issues to be considered (example 166). Third, Kamba has been exclusively affected by Swahili contact under the item *to work* (example 166). In the cases of *361 to break, 369 to dilute,* and *363 to divide*, finally, Kamba shows external contact with unknown donors as well as Swahili (see the relevant synopsis in appendix B), which further distances it from the remaining varieties.
The western dialects are set apart in regard to three items, i.e. they show unique forms under the meanings *to give*, *to lift*, and *to exchange*:

(168)	150 to give		*-ɦɛ(ana)*	Western
				versus
		PB *-pà 2344	> *-va*	Mbeere (36, 39)
		(Bastin et al. 2002)	> *-ɦa*	Imenti (7), Igoji (15),
				Muthambi (22, 25), Chuka
		CB *-nɲnk- C.S. 1363	> *-nɛng-, -nɛnk-*	all remaining varieties

The western form *-ɦɛ(ana)* and the ones relating to PB *-pà 2344 are, possibly, connected. The restricted distribution of *-va* and *-ɦa* may, however, indicate that these forms were borrowed rather than inherited from a meta-language. In any case, the western dialects are synchronically distinct in this regard.
In the case of *to lift*, the western dialects show the form *-ɔya* (also attested under the meaning *to take*), while the remaining varieties dispose of unrelated forms:

(169)	364 to lift	*-ɔya*	Western, cf. *097 to take*
			versus
		-kɪɪria	Meru, Igoji, Nithi, Tharaka
		-kɪrɪria	Embu, Mbeere, Chuka
			(borrowed by Kamba: *-ʊkɪlya, -ʊkɪlia, -ʊkʊlya*)

In the case of *to exchange* below, the western dialects are set apart from most of other varieties due to language contact with English (the item has, however, spread from the west into five isolated locations on the eastern slopes of Mount Kenya, i.e. Muthambi, Chuka, Embu-Mbeere):

(170)	375 to exchange	Eng. *to exchange*	> *-cɪnjania*	Gikuyu: Nyeri, Kiambu, Mathira (+ Muthambi 24, Chuka 28, Embu 35, Mbeere 36 / 39b)
			> *-sɪnjania*	Murang'a, Ndia, Gichugu
			v e r s u s	
			-kU(:r)ania	Eastern, Kamba

In sum, the western dialects are separated from most of the other varieties in regard to the three items *to give, to lift*, and *to exchange*. In example (168) above the difference might be due to divergence, the same holds for the item *to lift* in (169), even though we cannot rule out in both instances that language contact has played a (side)role. In the case of example (170), it is evident that the western dialects have been most severely affected by English contact, which distinguishes Gikuyu, Ndia, and Gichugu from almost all other dialects.

In respect to the eastern dialects, bundled isoglosses are especially difficult to identify. Only the item *to finish* (see example 163 attesting to the three-way split of CKB) is able to distinguish the eastern dialects from both Western and Kamba. The particular lexical distances in this field, therefore, need to be viewed as the overall outcome of all items reviewed in this class.

Borrowing has been identified in a total of 19 lexical items in this field. In most general terms, any dialect has been affected by borrowing in one or the other case in this domain. Four items attest to external borrowing from unknown donors. In the case of *to take* in the following example (171), we may assume borrowing based on the aberrant shapes under this keyword. Möhlig (1974a: 124) suggests that the form *-yU:kia* spread from Tharaka into the neighboring varieties. The forms *-ɔya, -ɔsa, -ɔ:ca* and *-ɔza* attest to an unusual sound correspondence, e.g. Western /y/ : Kamba /s, z/, indicating parallel borrowing for all the relevant varieties:

(171)	097 to take, recieve	*-jU:kia*	Meru, Igoji
		-yU:kia	Miutini (7), Nithi, Chuka, Tharaka
		-ɔ:ca	Embu, Mbeere
		-ɔsa	Kamba
		-ɔya	Western
		-ɔza	Kamba

In the case of *to seize*, Tharaka shows an aberrant shape, while all other eastern dialects dispose of forms relating to Common Bantu:

(172)	098 to seize	*-baːta*	Tharaka	
		-gwaːta / -kwata	Eastern / Kamba <	CB *-kúát- C.S. 1172
		+ unrelated forms in Western		

It is most likely that Tharaka has borrowed the form *-baːta*, as /b/ is considered a phonological irregularity in this language. In Mwimbi-Muthambi and Chuka, the aberrant shape *-bɛːria* occurs under the keyword *355 to try* (cf. example 164), while all eastern and western dialects show *-gɛːria* (relating to Common Bantu *-gèd- C.S. 797). The irregular form of Mwimbi-Muthambi and Chuka *-bɛːria* is likely to have been borrowed.
Kamba has been affected by unknown external donors in the following four instances of example (173). In each one of these cases, it has been additionally influenced by Swahili:

(173) External loanwords in Kamba

357 to push	unknown donor	>	*-luuta*	four locations in Kamba
	Sw. *-sukuma*	>	*-sʊkuma*	widespread in Kamba
361 to break	unknown donor	>	*-tʊla(nia)*	relatively widespread in Kamba
	unknown donor	>	*-tila(nia)*	6 locations in Kamba
	Sw. *-vunja*	>	*-bunza*	1 location in Kitui (97)
		>	*-bunzia*	1 location in Kitui (63)
363 to divde	unknown donor	>	*-tilania*	1 location in Kitui (74)
	Sw. *-gawanya*	>	*-awaaɲia*	1 location in Kitui (85)
		>	*-kawaaɲia*	1 location in Kitui (91)
369 to dilute	unknown donor	>	*-ɔlɔlɔsya*	1 location in Mumoni (81)
	unknown donor	>	*-ngululʊka*	1 location in Mumoni (80)
	Sw. *-yeyusha*	>	*-yɛyʊka*	1 location in Masaku (48)
		>	*-yɛyʊkya*	4 locations in Kamba

Next to the items in (173) above, that all show Swahili contact as well as influence from an unknown donor, the item *099 to lay down* (*-balʊk(y)a* in two locations Masaku-Kamba) attests to external borrowing from an unknown donor only.
Swahili has, however, been the most prominent donor in this field. Contact with Swahili is attested to by a total of 15 lexical items in this field:

(174)	076 medicine	Sw. *dawa*	> *ndaːwa, ndawa*	all of CKB
	090 to squat	Sw. *-chuchumaa*	> *-isɔsɔma*	Murang'a
	350 to begin	Sw. *-anza*	> *-anzɪa, -anjia, -anjɪrɪria*	Kamba, Western

354 to work	Sw. *-saidia*	> *-tɛðya*	Kamba
	Sw. *-sukuma*	> *-ðʊkʊma*	Kamba
357 to push	Sw. *-sukuma*	> *-sʊkuma*	Kamba
358 to put into	Sw. *-tia*	> *-tia*	Kamba (97)
359 to turn	Sw. *-zunguka*	> *-sunguka*	Kamba (74)
361 to break	Sw. *-vunja*	> *-bunz(i)a*	Kamba (63)
366 to carve	Sw. *-chonga*	> *-sɔnga, -cɔnga, -ðɔngwa*	Kamba, Western
368 iron	Sw. *chuma*	> *cuːma, ncuːma, suːma, etc.*	all of CKB
369 to dilute	Sw. *-yeyusha*	> *-yɛyʊk(y)a*	Kamba
370 (to) paint	Sw. *rangi*	> *rangi*	all of CKB
372 market	Sw. *soko*	> *(ɪ.)ðɔkɔ*	Eastern, Western
378 money	Sw. *pesa*	> *mbɛːca, mbɛːsa, mbɛca ...*	all of CKB
379 cheap	Sw. *rahisi*	> *raiði, laiði*	all of CKB

Only five out of the 15 items listed in (174) above show widespread usage in all of Central Kenya Bantu; they relate to techonological innovations (*076 medicine, 368 iron, 370 paint*) or trading in general (*378 money, 379 cheap*). The remaining items have affected Kamba most severely, while having had less impact on the rest of Central Kenya Bantu.
This kind of distribution seems to be due to the influence by colonial Swahili. Official markets, for example, were introduced in colonial times. Prior to that time, trading was mostly a private matter conducted on the individual level. When the British started their conquest of Kenya, aiming at the exploitation of the highlands, markets were set up and currency was introduced. The verbs in (174) above are mostly restricted to Kamba and seem to have been imported via direct contact with coastal communities – without the colonial regime being involved. The high number of coastal loans shows that Swahili is the major external donor in this semantic domain. Borrowing from English is, in contrast, limited to the three items in (175) below. Two items, moreover, seem to originate from Southern Cushitic:

(175) **a. English**

090 to squat	Eng. *to squat*	> *-skwɔti*	Nyeri (100)
375 to exchange	Eng. *to exchange*	> *-cɪnjania, -sɪnjania*	Western
376 debt	Eng. *bill*	> *mbilʊ*	Kamba (74)

b. Southern Cushitic

236 to cut	Cu. **tlaaq*	> *-tila*	Kamba
366 to carve	Cu. **sup*	> *-acʊβya, -acʊɦia, -asʊɦia, -icʊɦia*	Western, Kamba

The most prominent internal borrowing direction may be described as going downhill from the lower slopes of Mount Kenya into the plains of the Kamba territory. In some instances, the coexistence of regular and irregular forms is attested:
The keyword *087 to wait* is, for example, expressed by the form *-ɛtɛrɛra* in Gikuyu and similar forms in all other varieties in the foothills of Mount Kenya, suggesting common heritage. In Kamba, the Gikuyu form corresponds regularly to *-ɛtɛɛa*. However, a few locations in Kamba show *-ɛtɛɛla* and *-ɛtɛɛlɛla*, which were borrowed from the languages uphill.
In the case of *350 to begin*, cognates of Common Bantu *-yàmb- C.S. 1914 are attested for all of Central Kenya Bantu, for example *-ambırıria* in Gikuyu, which corresponds regularly to Kamba *-ambıa.* A few locations in Kamba have, additionally, borrowed the forms *-ambılılı̰a* and *-ambılılıa* from the foothills of Mount Kenya. The Gikuyu form *-ðirʊrʊkia* (*359 to turn*), in turn, seems to be the source word of Kamba forms such as *-ðyʊlʊlʊkya* and *-ðyʊlʊlʊka* etc.
In addition, the following forms in (176), attest to borrowing from the uphill languages into Kamba:

(176)	**Mt. Kenya**		**Kamba**
090 to squat	*-cunjumara* (Mbeere)	borrowed as	*-sʊnzʊmala*
	-tuntumara (Chuka, Embu)	borrowed as	*-tʊndʊmala*
	-ðuntumara (Tharaka)		*-tʊndʊmala*
099 to lay down	*-rɛkia*	borrowed as	*-lɛkia*
364 to lift	*-kıırıa / -kırıria*	borrowed as	*-ʊkılya*
			-ʊkılia
			-ʊkʊlya
367 to forge	*-tura*	borrowed as	*-tula*

Internal borrowing between the mountain ridges in the lower foothills of Mount Kenya seems, in contrast, to be far less significant in this semantic domain. According to Möhlig (1974a: 124), the form *-yʊːkia* (*097 to take*) spread from Tharaka into Igoji, Miutini, Imenti, and Nkubu, where it is attested as *-jʊːkia*. Uphill borrowing, i.e. from Kamba into the varieties in the proximity of Mount Kenya, is not attested in this field.
The following 12 items may be considered stable, i.e. unaffected by borrowing, in all of Central Kenya Bantu:

086 to rest (*-nog-, *-pud-, *-cum-)	352 to do (CB *-bíík- C.S. 122)	373 to buy (CB *-yùd- C.S. 2149)
088 to stand (PB *-dùng- 1201)	353 work (-*gug-, *-id-)	374 to sell (*-end-, *-ta, *-co-)
102 to throw (*-ged-, *-ik-)	358 to put into (CB *-bíík- C.S. 122)	377 to pay (CB *-dìp- C.S. 589)
150 to give (CB *-nɲ̀nk- C.S. 1363)	365 to mould	
351 to finish (*-cid-, *-min-, *-dik-)	(CB *-pìndud- C.S. 1529)	

Table 129: Stable concepts in the field 'Basic Actions, Technology, and Commerce' in all of CKB

Kamba has been affected by language contact in regard to the following 23 items:

External borrowing	Internal borrowing (downhill)
076 medicine (Sw.)	087 to wait
097 to take	090 to squat
350 to begin (Sw.)	099 to lay down
354 to work (Sw.)	350 to begin
357 to push (Sw.)	359 to turn, revolve
361 to break (Sw.)	361 to break
363 to divide	364 to lift
366 to carve (Sw.)	367 to forge
368 iron (Sw.)	
369 to dilute (Sw.)	
370 to paint (Sw.)	
376 debt (Eng.)	
378 money (Sw.)	
379 cheap (Sw.)	
380 expensive (Ma.)	

Table 130: Unstable concepts in the field 'Basic Actions, Technology, and Commerce' in Kamba

The eastern and western dialects have been affected by borrowing to approximately the same extent in this field. Borrowing is restricted to Eastern in the cases of *098 to* seize and *355 to try*, while borrowing is exclusively attested for Western in the case of *364 to lift*. The remaining items in table 131 attest to borrowing both in Eastern and Western:

External borrowing	Internal borrowing
076 medicince (Sw.)	097 to take, recieve (montane)
090 to squat (Sw.; Eng. in W.)	378 to exchange (montane)
097 to take, recieve	
098 to seize (Eastern only)	
355 to try (Eastern only)	
364 to lift (Western only)	
366 to carve (Cush.)	
368 iron (Sw.)	
370 (to) paint (Sw.)	
372 market (Sw.)	
378 to exchange (Sw., Eng.)	
378 money (Sw.)	
379 cheap (Sw.)	
380 expensive (Ma.)	

Table 131. Unstable concepts in the field 'Basic Actions, Technology, and Commerce' in Eastern and Western

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	exclusive CB retention in Kamba (ex. 164); innovation in Kamba (ex. 164)	most severe contact w/ English, Swahili, and unknown donors in Kamba (ex. 173, 174)	conceptual issues (ex. 166)
West vs. Rest	high	possibly divergence (ex. 168, 169)	exclusive English contact in West (ex. 175)	conceptual issues (ex. 169)

Table 132: Summary of the qualitative analysis in the field Basic Actions, Technology, and Commerce'

Total number of items	39	
Inconclusive cases	1	
	38	
Items affected by borrowing	Kamba	23 (61%)
Downhill: 8 Montane: 2 Swahili: 15 English: 3 Maasai: 1 Cushitic: 2	Western	13 (34%)
	Eastern	14 (36%)
Average borrowability in CKB		**43,7%**
Loanword typology (Tadmor 2009)		23,8%

Table 133: Domain statistics for the field 'Basic Actions, Technology, and Commerce'

9. Animals

The field 'Animals' shows an average of 25,5 percent of loanwords in the world's languages, i.e. it ranges in the middle of the loanword typology (Haspelmath and Tadmor 2009a). In this study, the following 44 items are reviewed in this field:

278 cattle (CB *-ŋɔmbɛ C.S. 1402)	315 buffalo (CB *-bògó C.S. 157)	338 house fly (CB *-gị C.S. 819)
281 bull (CB *-dúmè 'male' C.S. 697)	316 elephant (CB *-jògụ̀ C.S. 951)	339 mosquito (*-bú C.S. 172)
282 cow (CB *-ŋɔmbɛ C.S. 140, CB *-ká 'wife' C.S. 970)	317 giraffe (Sw. *twiga*, Ma., Eng.)	340 spider (CB *-bùbì C.S. 17, Sw. *buibui*)
285 donkey (Sw. *punda*, Ma. *o-síkìrià*)	319 hyena (inconclusive)	341 louse (CB *-dá C.S. 446)
286 goat (CB *-búdị̀ C.S. 185)	320 leopard (CB *-gò C.S. 834)	342 bird (CB *-yúnị̀ C.S. 2170, *-yònị̀ C.S. 2121)
287 sheep (Cush. **gɔndu*)	321 lion (Sw. *simba*)	343 feather
288 pig (CB *-gùdùbè C.S. 888)	322 fruit-bat	344 wing
289 chicken (CB *-kúkú C.S. 1203)	325 rat (CB *-bìbà p.s. 23)	345 to fly (CB *-bùduk- p.s. 43)
290 cock	326 fish (Sw. *samaki*)	346 guinea fowl (CB *-kángà C.S. 1010)
291 cat (Sw. *paka*)	328 crocodile (Ma. *ol-kinyaŋ*)	389 egg (CB *-tụ́mbí C.S. 1873)
292 dog	329 python (Eng. *python*)	
310 animal (CB *-yàmà C.S. 1910)	330 snake (CB *-jókà C.S. 952)	
311 to bite (CB *-dúm- C.S. 696)	331 lizard	
312 fur	332 snail	
313 horn (inconclusive)	333 frog (CB *-yùdá C.S. 2150)	
314 tail (inconclusive)	335 bee (CB *-júkì C.S. 962)	
	336 soldier ant	
	337 termite (CB *-cúá C.S. 932)	

Table 134: Lexical items reviewed in the field 'Animals'

The multidimensional scaling of the statistical results in figure 40 below shows a general three-way split of Central Kenya Bantu in this domain. In contrast to the three-way split shown by the overall results (figure 29 in section 3.2.1), in this case, however, the dialects of Embu and Mbeere as well Chuka are relatively close to Gikuyu, Ndia, and Gichugu. In fact, Western and Embu-Mbeere constitute one cluster in this field (whereas they are rather distant to each other in the overall outcome). The Kamba dialects as well as all the the eastern group seem to be fairly different from these varieties as well as to each other. Within the eastern group, the northernmost dialects Imenti and Nkubu are considerably distant to their neighbors:

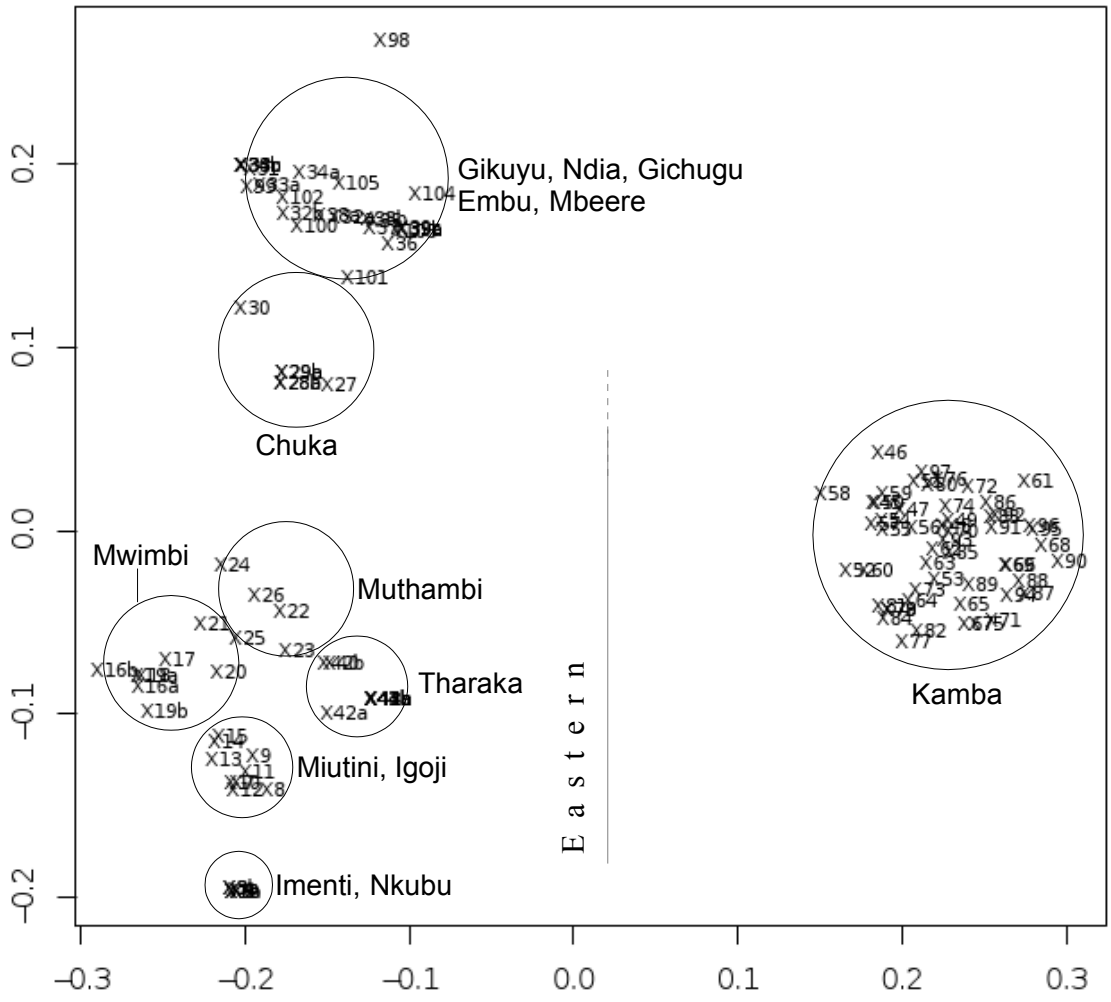


Figure 40: Multidimensional scaling of lexical distances in the field 'Animals'

Out of the 44 cases reviewed in this field, at least 22 items show a relation to Common Bantu. In the following seven instances in (177), all languages use regular forms, that are considered identical in the quantitative lexical analysis and, therefore, non-diagnostic in dialectometrical terms:

(177)	289 chicken	*ngʊkʊ*	< CB *-kúkú C.S. 1203
	311 to bite	*-(r)ʊma*	< CB *-dúm- C.S. 696
	315 buffalo	*mbɔ(g)ɔ*	< CB *-bògó C.S. 157
	316 elephant	*njɔgu / nzɔu*	< CB *-jògʉ̀ C.S. 951
	335 bee	*njʊkɪ / nzʊkɪ*	< CB *-júkì C.S. 962
	338 house fly	*ngi*	< CB *-gɨ̀ C.S. 819
	346 guinea fowl	*nkanga / nganga*	< CB *-kángà C.S. 1010

In a number of cases, we find an unusually high amount of diversity. On the one hand, this is due to conceptual issues; on the other hand, low frequency of usage may be assumed to result in the emergence of a relatively high amount of distinct forms. Conceptual issues need to be considered in the context of the following items:

In the case of *329 python*, we find genuine forms, such as *ɪ.taːra* (Embu, Mbeere) and *ntaːraːra* (Nithi, Chuka). Some Gikuyu speakers, however, do not denote this animal specifically, but rather use the general terms *ɲɔka* 'snake' and *ɲamɔ a ðɪ* 'animal of the ground' (cf. *330* snake). One speaker in Nyeri attests to the use of the English loan *paiðɔni*. These concepts distinguish the western dialects from all other varieties.
The case of *282 cow*, in turn, shows that in the eastern dialects as well as in Kamba most speakers specify the sex of the animal in question by using *ŋɔmbɛ (ya) nka* and *ŋɔmbɛ (ya) nga* 'female cattle'; the general term *ŋɔmbɛ* 'cattle' is also attested under this keyword next to the term *mɔ(r)i*, denoting a cow in milk ('heifer').
Under the keyword *343 feather*, in turn, we find the stem *-(g)ɔya* in the western dialects, which is also attested under the meaning *312 fur*. Some Kamba speakers, moreover, use the forms *ɪ.sɪa* and *ɪ.sɛa*, both also referring to the keyword *344 wing*. There seems to be a lack of distinction regarding these anatomical concepts in some varieties.
In the following five cases, the unusually high amount of diversity may be attributed to the fact that the relevant concepts are rarely used in daily life (cf. Möhlig 1974a): *322 fruit-bat, 332 snail, 336 soldier ant, 337 termite,* and *341 louse*.
In two additional cases, the low frequency of usage seems to have given way to external borrowing: The item *331 lizard* shows a total of 15 distinct word forms, out of which at least six show aberrant shapes and limited distribution in Kamba and may, consequently, be considered loans, e.g. *mwilʊ*, *ɪ.tɛlɛmbʊ*, *ɪ.ŋala*, and *ndilya*. In the case of *340 spider*, again, 15 distinct forms are attested in all of Central Kenya, e.g. *mbʊːbʊɪ* (Meru), *mbʊmbʊɪ* (Mbeere), *mbʊambʊi* (Kamba) – cf. Common Bantu *-bùbì C.S. 178; according to Möhlig (1974a: 157), the rare use of this concept may have given way to borrowing the relevant Swahili word *buibui*.
In regard to terms for small critters, such as *louse* or *spider*, I argue that they are rarely used because they are irrelevant to the daily lives of most speakers. In one case, the keyword *341 tail*, in contrast, the low frequency of usage, according to Möhlig (1974a: 153), is based on a taboo. Such a social restriction on a specific word may become evident during the elicitations, when informants are reluctant to translate an item. In the case of *tail* this reluctance is due to the fact that the relevant forms may also denote 'penis' in some dialects (ibid.).
Figure 40 above shows that Kamba is relatively distant to the remaining varieties in the field 'Animals'. A number of cases attest to this separation of Kamba from all other varieties. Most of the following items in (178) attest to divergence between Kamba and all its neighbors:

(178)	281 bull	*nzaʊ*	Kamba
			v e r s u s
		ndɛːgwa	Eastern, Western
			(restricted use of *ndɛᵍwa* in Kamba)
		ndʊmɛ	Nyeri (98, 100) < CB *-dúmè C.S. 697 'male'

312 fur	PB *-jòjá 3587 (Bastin et al. 2002)				
	ᵍwɪa	Kamba			
		v e r s u s			
	guɛ	Meru, Igoji, Nithi			
	gwɔya	Chuka, Embu, Mbeere			
	gwaːya	Tharaka			
	gU.ɔya, ma.gUɔya	Western			
320 leopard	*ngɔ*	Kamba (+ Tharaka)			
	kɪ.kɔyɔ	Kamba			
		v e r s u s			
	nkari	Meru, Igoji, Nithi			
	ngarɪ	Western			
	ndU	Chuka			
	gɪ.taŋa	Embu, Mbeere			
333 frog	CB *-yùdá C.S. 2150	>	*ky.ɔa, ky.ɔwa, ky.Ua*	Kamba	
			v e r s u s		
		>	*kɪ.U:ra*	Eastern, Western	
339 mosquito	CB *-bú C.S. 172	>	*U.muu, ka.muu*	Kamba	
			v e r s u s		
			rU.a(:)gɪ	E a s t e r n , Western	
344 wing	*U.ðwau, kɪ.ðau, U.ðɔu, U.ðau*			Kamba	
			v e r s u s		
	ɪ.ðagu, i.ðagu			Eastern, Western	

In the case of *bull* in (178) above, the form *nzaU* seems to be genuine to Kamba (innovation), as it is regular in shape and widespread in distribution. The remaining varieties show unrelated forms. In the case of *fur*, Kamba diverges phonologically from all its neighbors by showing a velar onset before the labial approximant [ᵍw]. The item *leopard* is expressed by the terms *ngɔ* and *kɪ.kɔyɔ* in Kamba, while most of the remaining varieties show unrelated forms; there is no indication of borrowing. In the case of *frog*, Kamba diverges from all its neighbors in the reflection of the relevant Common Bantu form. In turn, Kamba relates somehow to Common Bantu under the keyword *mosquito*, whereas the eastern and western dialects diverge. Finally, the item *wing* suggests divergence as well, as there is no indication of language contact, which holds for most items listed in (178). In short, Kamba is set apart from the remaining varieties due to internal language change.

External change has, however, also contributed to the distance between Kamba and the neighboring languages. In the following case (179), Kamba seems to have been unaffected by the outside donors that only impacted the eastern and western varieties:

(179)	285 donkey	*ɪ.ŋɔi*	Kamba	
			v e r s u s	
		ntigiri	Meru, Igoji, Nithi, Tharaka	< Ma. *o-síkìrìà*
		(m)bunda	Chuka, Embu, Mbeere, Western	< Sw. *punda*

In the following case (180), Kamba has been affected by language contact as well, however, not in the same way as its neighbors:

(180)	287 sheep	*ɪ.lʊnga*	Kamba	< unknown donor
		ɪ.lɔndu	Kamba	< Cush. *gɔndu (?)
		ŋ(ɔ)ɔndu	Eastern, Western	< Cush. *gɔndu

The above discussion shows that Kamba is set apart from all its neighbors based on divergence on the one hand. On the other hand, language contact seems to have further distanced Kamba from the rest of Central Kenya Bantu: Either Kamba has been unaffected by external donors that influenced the remaining varieties (example 179) or its has been impacted by an outside donor that did not affect the eastern and western dialects (example 180).

The western varieties are set apart from all other dialects based on two items. In the case of *animal*, they have diverged from their neighbors, while a difference in concepts separates Western from Eastern and Kamba under the keyword *feather*:

(181)	310 animal	CB *-yàmà C.S. 1910			
		>	*ɲamɔ*	Western	
				v e r s u s	
		>	*ɲɔmɔ*	Meru	
		>	*ɲamʊ*	all remaining varieties	
	343 feather	*gʊ.ɔya*, *rʊ.ɔya, ma.gɔya*		'fur'	Western
					v e r s u s
		-bʊɪ etc.		'feather'	all remaining varieties

In addition, the western dialects seem to have been unaffected by borrowing under the keyword *to fly*, whereas the remaining varieties are likely to have been subject to language contact in this case:

(182)	345 to fly	*-ʊmbʊka*	Western (+ *-ʊngʊka* in one location of Nyeri)		
			v e r s u s		
		-buːrʊka	Meru, Igoji, Nithi	(≠ CB *-bùduk- p.s. 43)	Eastern
		-burʊrʊka	Chuka	(≠ CB *-bùduk- p.s. 43)	
		-bʊrʊka	Tharaka	(≠ CB *-bùduk- p.s. 43)	
		-gʊrʊka	Embu, Mbeere (*-gʊrʊ-* 'up') borrowed by Kamba: *-ʊlʊka*		

For most eastern dialects (possibly, with the exception of Embu-Mbeere) and Kamba, we may assume borrowing of the relevant forms in (182) above. If they were related to Common Bantu, we could expect to find forms without the aberrant segment /b/, as Common Bantu *b is usually deleted in all of Central Kenya Bantu. The western dialects seem to have been unaffected by the borrowing processes that transmitted forms such as *-buːrʊk a* (Meru) or *-bʊrʊka* (Tharaka) into Eastern.
In addition, the western dialects have exclusively borrowed from Swahili under the keyword *snake*: While most varieties show a regular relation to Common Bantu in this instance, the western dialects use the Swahili loan *ɲɔka*:

(183)	330 snake	*ɲɔka*	Western	< Sw. *nyoka* (expected: *njɔka)
			v e r s u s	
		njɔka	Eastern	< CB *-jókà C.S. 952
		nzɔka	Kamba	< CB *-jókà C.S. 952

Mutual borrowing from Swahili has, in addition, resulted in homogenization among the western dialects and their immediate neighbor Embu-Mbeere. This is represented in the relatively low distances between these groups in figure 40 above. In fact, the western dialects and Embu-Mbeere may be considered one cluster in the field 'Animals'. The following cases in (184) attest to mutual borrowing from Swahili into Embu-Mbeere and Western – the remaining varieties have been largely unaffected by Swahili in these instances:

(184)	285 donkey	Sw. *punda*	>	*(m)bunda*	Western, Embu, Mbeere
				(+ 5 isolated attestations of *mpunda* in Eastern)	
				v e r s u s	
		Ma. *o-síkìrìà*	>	*ntigiri*	most of Eastern
				ɪ.ŋɔi	Kamba

312 lion	Sw. *simba*[28]	>	*cimba*	Chuka, Embu, Mbeere, Nyeri
			(+ isolated attestations in Eastern)	
		>	*simba*	Murang'a, Ndia, Gichugu
			versus	
			mU.ɲambU	Kamba
			ngatuɲi	Meru etc.
326 fish	Sw. *samaki*	>	*ðamaki*	Western, Embu, Mbeere
			(+ *camaki* in some of Eastern)	
			versus	
			gɪ.kU(y)U , ɪ.kUyU	most remaining varieties

The item *donkey* in (184) above shows that Embu-Mbeere and Western have mutually borrowed the Swahili word *punda*, while most eastern dialects have borrowed from Maasai, and an unrelated form is attested for Kamba. In the case of *lion*, borrowing from Swahili is most likely. Again, Swahili influence has been most effective in Gikuyu and Embu-Mbeere. In the case of *fish*, some eastern dialects show *camaki*, going back to Swahili *samaki*. The segment /c/ is represented by the phonological correspondence series *C_1 (see section 3.1.2). The form *ðamaki,* in contrast, represents series *C_3. I showed in section 3.1.2 that incorporating Swahili alveolar fricatives as /ð/ is typical of Gikuyu, Ndia, and Gichugu. In the case of *fish*, we may, therefore, conclude that Embu-Mbeere borrowed the Swahili loan *ðamaki* via its western neighbors.

There are two additional cases – *cat* and *dog* – that separate Embu-Mbeere and Western from all remaining varieties. Again, we may assume mutual borrowing. As Möhlig (1974a: 151) points out, both cats and dogs have been introduced to Central Kenya as domestic animals in recent times. It seems likely, therefore, that the relevant terms are borrowed. In the case of *cat*, Embu-Mbeere and Western use onomatopoetic forms while most remaining varieties have borrowed the Swahili word *paka*. Borrowing seems likely for the case of *dog* as well (ibid.):

(185)

291 cat	*ɲaU, ɲau*	Western	
	ka.ɲaU, ka.ɲau	Embu, Mbeere	
		versus	
	mpaka, mbaka	Eastern	< Sw. *paka*
	ka.baka	Kamba	< Sw. *paka*

28 The relevant Common Bantu form is *-cím̀bà C.S. 357. A relation to this item can, however, be ruled out. A regular relation would be expected to yield a form such as **ðimba* according to the correspondence series *C_3 (see section 3.1.2).

292 dog	*ngu(ru)i*	Embu, Mbeere, Western
		(+ isolated attestations in Eastern)
		v e r s u s
	karu	e.g. Meru
	ngitɪ	Kamba

In sum, the particularly low distances between Embu-Mbeere and the western dialects in the field 'Animals' depicted in figure 40 above may be attributed to external language change, i.e. especially mutual Swahili contact.
Contact with Swahili is attested to by a total of seven items in this semantic domain:

(186)	215 donkey	Sw. *punda*	>	*mbunda*	Chuka, Embu, Mbeere, Ndia
				bunda	Gikuyu, Gichugu
	290 cock	Sw. *jogoo*	>	*ɲjɔgɔ*	Western
	317 giraffe	Sw. *twiga*	>	*ntwiːga*	Chuka
				ndwiːga	Embu, Mbeere
				ndʊːiga	Kiambu, Mathira, Gichugu
				twiga	Nyeri, Ndia
	321 lion	Sw. *simba*	>	*cimba*	Chuka, Embu, Mbeere, Nyeri
				simba	Murang'a, Ndia, Gichugu
	326 fish	Sw. *samaki*	>	*(n)ðamaki*	Embu, Mbeere, Western
	330 snake	Sw. *nyoka*	>	*ɲɔka*	Western
	340 spider	Sw. *buibui*	>	13 forms	in all of CKB (low frequency)

Next to the Swahili items in (186) above, four Maasai loanwords and two English loans can be identified. Except for Maasai loans under the keywords *crocodile*, attested in all of Central Kenya Bantu, the Maasai loanwords are mainly restricted to the northeastern slopes of Mount Kenya. English loans are only attested in Nyeri and Murang'a. In addition, one items shows Cushitic borrowing:

(187) **a. Maasai** (Möhlig 1974a; Tucker & Mpaayei 1955)

285 donkey	Ma. *o-síkìrìà*	> *ntigiri*	Meru, Igoji, Nithi, Tharaka
		> *ndigiri*	Kiambu (Gikuyu)
328 crocodile	Ma. *ol-kinyaŋ*	> *kɪ.ŋaːŋi, kɪ.ŋaŋi*	all of CKB
321 lion	Ma. ???	> *ngatuŋi*	Meru, Igoji, Nithi, Tharaka (42a)
331 lizard	Ma. *o-loiruri*	> *mʊ.ʊrʊːrʊ*	Meru

b. English

317 giraffe	Eng. *giraffe*	> *njirabu*	Gikuyu: Nyeri, Murang'a
329 python	Eng. *python*	> *paiðɔni*	Gikuyu: Nyeri

c. Southern Cushitic (Philippson 2013)

287 sheep	Cu. **gɔndu*	> *ŋɔndu, ŋɔɔndu*	Eastern, Western

In four instances, external loans from unknown donors can be identified in in Kamba:

(188) Loanwords in Kamba

287 sheep	*ɪ.lʊnga*	Kamba (widespread)
290 cock	*nzɔkɔlɔ, nzɔkɔlu*	Kamba (restricted)
331 lizard	*mwilʊ*	Kamba (restricted)
	(k)ɪ.tɛlɛmbʊ	Kamba (restricted)
	ɪ.tɛɛmbʊ	Kamba (restricted)
	ɪ.ŋala	Kamba (restricted)
	ndilya	Kamba (restricted)
	ɪ.tilɪngʊ	Kamba (restricted)

The item *bird* may also attest to external borrowing: The majority of dialects use forms relating to Common Bantu *-yúnị̀ C.S. 2170 or *-yònị̀ C.S. 2121. The fact that Guthrie (1967-71) constructed two distinct forms under this meaning shows that the item *bird* is generally diverse in Bantu. The following varieties shown in (189) relate to Common Bantu under this meaning:

(189)	342 bird	CB *-yònị̀ C.S. 2121	>	*ɲɔni*	Meru, Igoji (14), Tharaka, Western
			>	*kɪ.ɲɔni*	Igoji (13), Nithi
			>	*ɲɔɲi*	Kamba
		CB *-yúnị̀ C.S. 2170	>	*ɲʊɲi*	Kamba

Chuka and Embu-Mbeere as well as parts of Kamba show aberrant shapes under the meaning *bird.* The Chuka form *gɪ.cici* is unrelated to all remaining forms as well as aberrant in shape and, therefore, possibly borrowed from an outside language. All locations in Embu-Mbeere show the form *gɪ.cɔni*, possibly acquired from an outside donor as well. Kamba, in turn, shows items similar to the Embu-Mbeere form *gɪ.cɔni*, e.g. *ɪ.sɔni* and *ɪ.sʊni*. Since the form *gɪ.cɔni* is widespread in all of Embu-Mbeere, but the similar forms in Kamba are highly restricted, we may argue from a distributional point of view that they constitute a case of downhill borrowing from Embu-Mbeere into Kamba.

(190) 342 bird **unknown donor (?)** **Embu-Mbeere** **Kamba**

- - - → *gɪ.cɔni* → *ka.sɔni* (4x)
ka.sʊni (2x)
ɪ.sʊni (5x)
ɪ.sɔni (4x)
ɪ.sɔɲi (1x)

The following two items in (193) may also make a case for downhill borrowing. In the case of *to fly*, borrowing from Embu-Mbeere into Kamba seems likely. The Kamba speakers seem to have deleted /g/ and substituted /r/, as their language has no such segments at its disposal. In the case of *pig*, all languages in the vicinity of Mount Kenya are possible donors; in that case, Kamba shows a regular next to a borrowed form[29]:

(191) 345 to fly Embu-Mbeere *-gʊrʊka* → *-ʊlʊka* Kamba

288 pig CB *-gùdùbè C.S. 888

ngʊrʊɛ *ngʊʊwɛ*
Mt. Kenya Kamba
→ *ngʊlʊ(w)ɛ*

The opposite borrowing direction, i.e. from Kamba uphill towards Mount Kenya, is attested by the following item in (194). In this case, the form *mʊ.ɲambʊ* is widespread in Kamba, while highly restricted in distribution in the foothills of Mount Kenya. For this reason, we may argue that the word has been transferred from Kamba into Tharaka and two locations of Mbeere – both varieties share a border with the Kamba area:

(192) 321 lion *mʊ.ɲambʊ* Kamba → *mʊ.ɲambʊ* Mbeere (37, 39)
Tharaka (41, 42c-44)

Finally, two items in this field may make a case for internal diffusion due to school education within Kamba: Under the keyword *320 leopard*, most locations in Masaku use the form *kɪ.kɔyɔ*, which competes over distribution with the word *ngɔ* (< CB *-gò C.S. 834). The prevalence of the former in the western part of the Kamba territory is probably due to its use in school literature (cf. Watuma 2008: 22; Mwende 2006: 23). Another item that seems to be spreading from Masaku – the area in Kamba with the longest tradition of public schooling (see section 1.2.2) – into the other parts of Kamba territory is the form *ɲʊɲi* (*342 bird*), attested in the relevant text books (TLY Kamba Course Book 1: 16; Mwende 2006: 57).
In sum, the animal names reviewed in this section may be classified into three categories: First, we find typical African animals that are referred to by terms relating to Common Bantu. These include wild animals, such as *316 elephant* and *346 guinea fowl*, domesticated animals (*288 pig*, *289 chicken*), and common insects (*335 bee, 338 house fly*). The second type of animals relates to productive livestock: The relevant terms are less stable than the archaic

29 Swahili *nguruwe* cannot be ruled out as a source word of *ngʊlʊ(w)ɛ* in Kamba.

animal names above, i.e. they are borrowed from Swahili (*285 donkey, 290 cock*), Maasai (*285 donkey*), and Cushitic (*287 sheep*). This seems to represent the fact that these animals were initially imported into Central Kenya by trade. The third category comprises animals that are either uncommon in the area around Mount Kenya (*317 giraffe, 321 lion*) or may be considered irrelevant to the daily lives of the people in the highlands (*331 lizard, 340 spider*). These items are also unstable, i.e. we often find an unusually high amount of diverse forms, possibly due to borrowing.
The following 21 items may be considered stable in all of Central Kenya Bantu:

278 cattle / 282 cow	315 buffalo (CB *-bògó C.S. 157)	338 house fly (CB *-gị̀ C.S. 819)
(CB *-ŋɔmbɛ C.S. 1402)	316 elephant (CB *-jògṳ̀ C.S. 951)	339 mosquito (CB *-bú C.S. 172)
281 bull (*-deg-, *njau)	320 leopard (CB *-gò C.S. 834)	341 louse (CB *-dá C.S. 446)
286 goat (CB *-búdị̀ C.S. 185)	325 rat (CB *-bìbà p.s. 23)	344 wing (*-cag-)
289 chicken (CB *-kúkú C.S. 1203)	333 frog (CB *-yùdá C.S. 2150)	346 guinea fowl
310 animal (CB *-yàmà C.S. 1910)	335 bee (CB *-júkì C.S. 962)	(CB *-kángà C.S. 1010)
311 to bite (CB *-dúm- C.S. 696)	336 soldier ant	389 egg (CB *-tṷ́mbí C.S. 1873)
312 fur (*-gu-)	337 termite (*-cua)	

Table 135: Stable concepts in the field 'Animals' in all of CKB

In Kamba, the following items attest to lexical diffusion:

External borrowing	**Internal borrowing**
287 sheep	288 pig (downhill)
290 cock	320 leopard (school)
291 cat (Sw.)	342 bird (downhill, school)
292 dog	345 to fly (downhill)
317 giraffe (Sw.)	
328 crocodile (Ma.)	
331 lizard	
332 snail	
340 spider (Sw.)	
342 bird	

Table 136: Unstable concepts in the field 'Animals' in Kamba

Western and Embu-Mbeere have been affected most severely by external borrowing. Contact with external donor languages is attested to in the following cases:

285 donkey (Sw.)	321 lion (Sw.)	340 spider (Sw.)
287 sheep (Cush.)	322 fruit-bat	342 bird
290 cock (Sw.)	326 fish (Sw.)	343 feather
291 cat	328 crocodile (Ma.)	345 to fly (?)
292 dog	329 python (Eng.)	
317 giraffe (Sw., Eng.)	330 snake (Sw.)	

Table 137: External borrowing in the field 'Animals' in Western and Embu-Mbeere

The eastern dialects, in turn, show borrowing under the following keywords:

External borrowing	Internal borrowing
285 donkey (Ma.)	321 lion (uphill)
287 sheep (Cush.)	
291 cat (Sw.)	
292 dog	
317 giraffe (Sw.)	
321 lion (Sw.)	
322 fruit-bat	
326 fish (Sw.)	
328 crocodile (Ma.)	
340 spider (Sw.)	
342 bird	
343 feather	
345 to fly	

Table 138: Unstable concepts in the field 'Animals' in Eastern

In sum, both inheritance and contact have contributed to the particular linguistic distances in the field 'Animals'. Especially external contact has played an important role in this field: On the one hand, mutual borrowing from Swahili has resulted in the particularly low distances between Embu-Mbeere and the western dialects. In other words, Swahili influence has been strong enough to bridge the gap between Embu-Mbeere and Western. In the eastern varieties, external contact has had the opposite effect, i.e. it resulted in a synchronic split between the northernmost varieties of Imenti and Nkubu and their immediate neighbors on the eastern slopes due to the fact that Maasai has most severely influenced the dialects Imenti and Nkubu, whereas the neighboring dialects have been less affected by Maasai.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	divergence (ex. 178)	Kamba unaffected by Maasai and Swahili (ex. 179); exclusive contact w/ external donors in Kamba (ex. 188)	External contact has contributed to the split between Kamba and the rest of CKB
West vs. Rest	high	divergence (ex. 181)	West unaffected by external donor (ex. 182); exclusive Swahili contact in West (ex. 183)	conceptual issues (ex. 181 and *329 python*)
Embu-Mbeere-West	low	-	mutual Swahili contact (ex. 184), mutual contact w/ unknown donors (ex. 185)	External contact bridged the gap between Embu-Mbeere and West
Imenti-Nkubu vs. East	high	-	Maasai contact most severe in Imenti and Nkubu (ex. 187)	Contact w/ Maasai distanced Imenti-Nkubu from their neighbors

Table 139: Summary of the qualitative analysis in the field 'Animals'

Total number of items	44	
Inconclusive cases	3	
	41	
Items affected by borrowing	Kamba	14 (34%)
Downhill: 4 Uphill: 1 Swahili: 7 English: 2 Maasai: 4 Cushitic: 1	West / Embu-Mbeere	16 (39%)
	Eastern	14 (34%)
Average borrowability		**35,7%**
Loanword typology (Tadmor 2009)		25,5%

Table 140: Domains statistics for the field 'Animals'

10. Warfare and Hunting

In the sample languages investigated by the contributors to Haspelmath and Tadmor (2009a), this field shows an average of 27,9 percent of loanwords, ranging in the upper half of the borrowing hierarchy. In this study, the following 23 items are reviewed:

160 quarrel /	183 oath (Ma. *ol-mumái*)	300 to pierce
161 to quarrel (CB *-tét- C.S. 1720)	184 to command	301 to kill (CB *-búd- C.S. 184)
162 to slap (Sw. *-piga kofi*)	(Sw. *-amuru*, *-lazimisha*)	302 shield
163 to beat somebody	293 to hunt /	(CB *-gàbò C.S. 756, Ma. *e-lɔ́ŋɔ́*)
(PB *-pùʊd- 2628)	294 hunter (CB *-gʉ́ím- C.S. 904)	304 trap (CB *-tégò C.S. 1699)
164 to hit, strike	295 bow (CB *-tá C.S. 1631)	308 to fish (CB *-teg- C.S. 1698,
165 war (Ma. *áà-àrà*)	296 arrow (CB *-gʉ́ím- C.S. 904)	CB *-kúát- C.S. 1172)
166 to fight (CB *-dù- C.S. 675)	298 to shoot (CB *-dác- C.S. 449)	309 fishhook (Sw. *ndoana*)
168 to chase away	299 spear (CB *-tʉ́mó C.S. 1867,	
171 to hide (CB *-pị̀c- C.S. 1546)	CB *-tʉ́mù C.S. 1868)	

Table 141: Lexical items reviewed in the field 'Warfare and Hunting'

The multidimensional scaling of the dialectometrical results in figure 41 below renders an unusual picture. Rather than showing the typical three-way split, the diagram below indicates a general two-way division: The Kamba dialects are distributed in the right side of the picture, showing a relatively high amount of diversity. The remaining varieties are grouped in the left part of the diagram. With the exception of the northernmost dialects Imenti and Nkubu, all eastern and western dialects are clustered relatively closely.

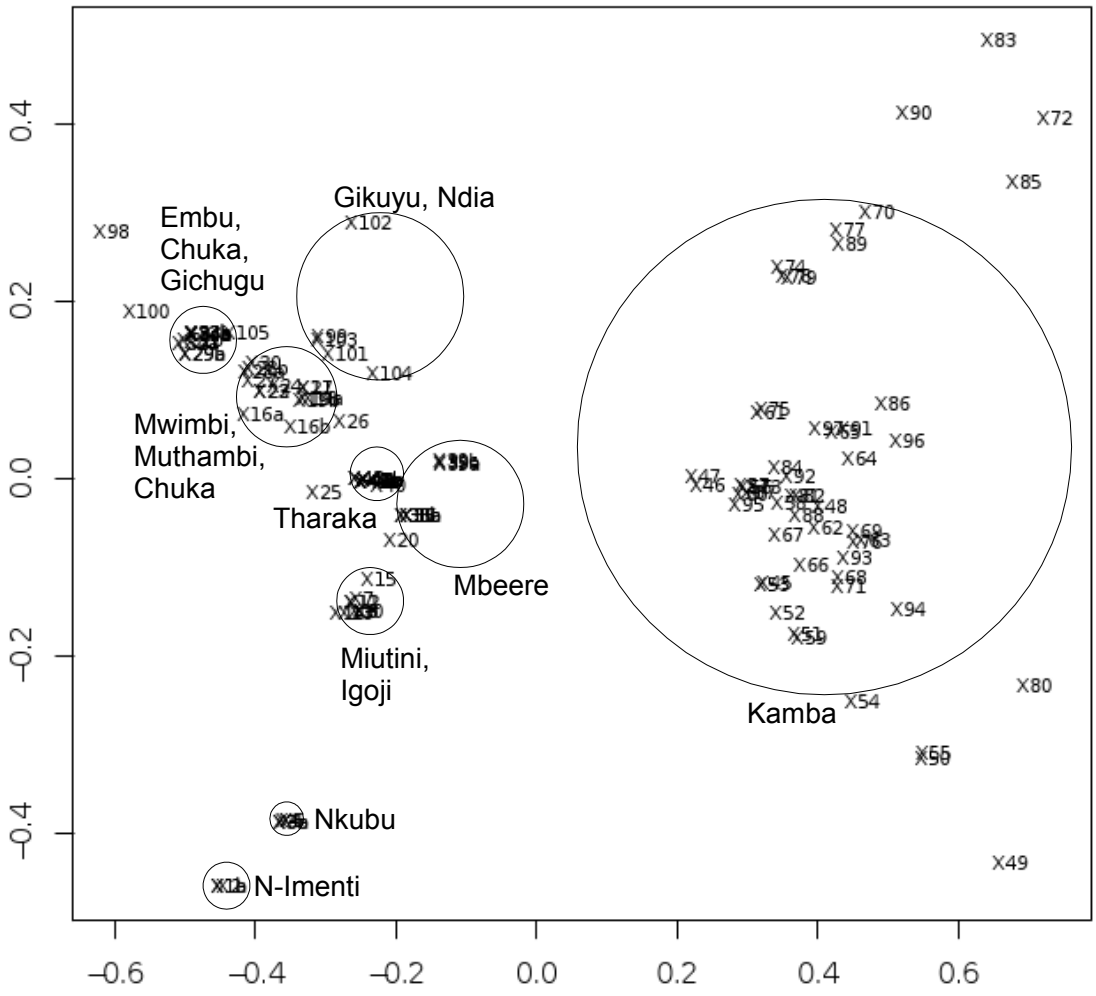


Figure 41: Multidimensional scaling of lexical distances in the field 'Warfare and Hunting'

In parts, the atypical outcome presented in figure 41 is due to conceptual issues. For example, the item *quarrel* shows a total of 22 distinct word forms. The high amount of diversity in this case is based on the fact that at least four different concepts are used to express this notion, e.g.:

(193)	160 quarrel	*-tɛta*	'quarrel'	Meru, Igoji, Mwimbi (20), Embu, Kamba (< CB *-tét- C.S. 1720 'to quarrel')
		-nɛgɛnɛ	'noise'	Igoji (13), Nithi, Chuka, Embu (30, 32) (cf. *555 noise*)
		-ɦaːra, mbaːra	'war'	Western: Kiambu, Murang'a (cf. *165 war*)
		-umana, -ɛmana	'curse'	Kamba (85, 96)

In regard to the notions *to hit, to beat somebody,* and *to slap somebody,* again, there are conceptual issues to be taken into consideration. In general, there are four verbs that express the concept of striking somebody:

(194)	*-ringa*	164 to hit / 162 to slap
	-kuna	164 to hit / 162 to slap / 163 to beat
	-tura	163 to beat / 167 to forge
	-ɦʊːra, -vʊːra, -bʊa	164 to hit / 162 to slap / 163 to beat
		(PB *-pʊ̀ʊd- 2628 'to beat with stick', Bastin et al. 2002)

The first two items in (194), *-ringa* and *-kuna*, seem to denote the concept of hitting somebody with one's bare hands. The other two items in (194) may, possibly, be understood as the notion of striking somebody with an object: The item *-tura* is also found under the keyword *to forge*, an activity that is usually carried out with a blunt object. The regular forms *-bʊa* (Kamba), *-vʊːr a* (Embu-Mbeere), and *-ɦʊːr a* (all others) seem to go back to an old Bantu item, for which Bastin et al. (2002) list the meaning 'beat with stick', e.g. to thresh corn. These conceptual differences contribute to the diversity in Central Kenya Bantu.
Conceptual issues are also to be considered under the keywords *to hunt, trap, to fish* and *fishhook*. In the case of *293 to hunt*, Embu-Mbeere, Chuka, and Tharaka show the form *-gwɪːma*, relating to the relevant Common Bantu item CB *-gʊ́ím- C.S. 904. While the Meru dialects show a unique innovation *-ðɔːga*, one location in Gikuyu-Nyeri shows the item *-tɛga* with the meaning 'to trap'. The stem *-tɛ(g)-* occurs under the following five keywords:

(195)	CB *-tégò C.S. 1699	>	*-tɛga*	293 to hunt	Nyeri (98)
		>	*mʊ.tɛgi*	294 hunter	Nyeri (98)
		>	*mʊ.tɛ(g)ɔ*	304 trap	all of CKB
		>	*-tɛga*	308 to fish	all except for Imenti and Nkubu
		>	*kɪ.tɛi*	309 fishhook	Kamba

The items in (195) seem to attest to conceptual differences on the one hand and, possibly, semantic change on the other hand. The English keyword *to hunt* may denote different activities: We may understand the concept of hunting in the sense of simply pursuing an animal with the intention of killing it, for example, by taking part in a battue. However, hunting an animal may also be conducted by means of setting up traps. Guthrie (1967-71) provides the meaning 'trap' for the item *-tégò C.S. 1699. All of Central Kenya show the form *mʊ.tɛ(g)ɔ* under this meaning. A few locations, however, seem to have broadened the denotational range of this item by giving it the meanings *to hunt / hunter* (Nyeri) and *fishook* (Kamba). As fishing is a relatively uncommon activity in Central Kenya, most dialects to not dispose of a specific verb to translate this notion. The concept is either expressed by meanings relating to CB *-tégò C.S. 1699 'trap' or to the item CB *-kúát- C.S. 1172 'to seize'. In sum, the items *to hunt / hunter* as well as *to fish* and *fishhook* may attest to semantic change in at least some of Central Kenya Bantu.
The unusual statistical outcome in this field (in figure 41) is partially due to various concepts occurring under different keywords. This holds also for the atypical diversity shown by Kamba in figure 41 above. In total, Kamba is set apart from all its neighbors based on eleven items. In the cases of *shield* in the following example (196), Kamba is set apart due to divergence:

(196)	302 shield	CB *-gàbò C.S. 756	>	*ngaɔ*	Kamba
				v e r s u s	
			>	*ngɔ*	Western, Nithi, Chuka, Embu, Mbeere
				(+ Maasai loan in the remaining varieties)	

Under the keywords *war* and *to fight,* Kamba shows unique forms. In the case of *war*, all other languages show either a form relating to Common Bantu or a Maasai loan (cf. Möhlig 1974a: 134) – Kamba shows neither. In the case of *to fight*, the eastern and western dialects relate to Common Bantu, whereas Kamba shows a unique innovation:

(197)	165 war	*ka:U*	Kamba	
		v e r s u s		
		ndUa	Meru	< CB *-dù- C.S. 675 'to fight'
		ndɔa	Igoji, Nithi, Chuka, Tharaka	< CB *-dù- C.S. 675 'to fight'
		ndwaa	Tharaka	< Ma. *áà-àrà* 'to fight'
		mbaara	Western, Embu, Mbeere	< Ma. *áà-àrà* 'to fight'
	166 to fight	*-kita*	Kamba	
		v e r s u s		
		-rUa, -rɔa	Eastern, Western	< CB *-dù- C.S. 675 'to fight'

The item *war* in (197) shows that, unlike many neighbors, Kamba has not been affected by Maasai contact in this instance.
In the following case *oath*, Kamba does show a Maasai loan (cf. Tucker & Mpaayei 1955: 300), however, in much more restricted distribution than in the remaining varieties. In other words, the impact of the Maasai word *muma* has not been severe enough in Kamba to replace all genuine forms under the meaning *oath*:

(198)	183 oath			*kɪ.ðitU, kɪ.ðitɔ*[30]	Kamba
				v e r s u s	
		Ma. *ol-mumáì*	>	*mu:ma*	all of Eastern, Western
			>	*muma*	Kamba (restricted)

In the following example (199), Kamba differs from the remaining varieties in several aspects under the keyword *to command*: First, Kamba shows forms that are unrelated to the ones in the neighboring languages – they are, possibly, unique innovations. Second, Kamba uses unique circumscriptions to express the notion of commanding. Third, it is the only variety to use the Swahili word *-lazimisha* 'to force' under this meaning:

30 Möhlig (2014: 232) provides the meaning 'to speak the truth' for the genuine Kamba forms *kɪ.ðitU* and *kɪ.ðitɔ.*

(199)	184 to command	*-ɪaɪa, -ɪɪa, -ɪyaa*	'to command'	Kamba
		-nɛng(an)ɛ mw.ɪaɔ	'to give law'	Kamba, cf. *076 law*
		-laðimiðya, -lasimiʃa	'to force'	Kamba, Sw. *-lazimisha*
				v e r s u s
		-a(:)ða(na)	'to command'	Eastern, Western, Kamba

In sum, Kamba is set apart from its neighbors on the basis of different factors: First, it seems to have diverged from the remaining varieties (example 196). Second, it has not been affected by Maasai in the same way as the eastern and western dialects (examples 197, 198). Third, under the keyword *to command* (example 199), it shows unique Swahili loans. In the case of *309 fishhook* (cf. example 195 above), Kamba relates to Common Bantu CB *-tégò C.S. 1699 by showing *kɪ.tɛi*; whereas all other varieties seem to have borrowed the Swahili word *ndoana*. Moreover, Kamba shows unique forms under the following items – without any indication that language contact has been at play: *162 to slap, 293 to hunt / 294 hunter, 296 arrow,* and *301 trap.*

The eastern and western dialects are situated in the left part of figure 41 above. This picture is insofar atypical as the two groups are usually rather distinct from each other (see figure 29 in section 3.2.1). In the field 'Warfare and Hunting', the western dialects constitute one cluster with Embu, Chuka as well as Mwimbi and Muthambi. On the one hand, the low distances between these varieties are due to shared innovations, e.g. in the case of *hunter* and *shield*:

(200)	294 hunter	CB *-gʊ́ím-C.S. 904	>	*mʊ.gwɪːmi*	Murang'a, Embu, Mbeere, Mwimbi (17, 21), Muthambi, Chuka
					v e r s u s
					unrelated forms in the rest of CKB
	302 shield	CB *-gàbò C.S. 756	>	*ngɔ*	Western, Nithi, Chuka, Embu, Mbeere
					v e r s u s
			>	*ngaɔ*	Kamba
				(+ Maasai loan in the remaining varieties)	

On the other hand, Western, Nithi, Chuka, and Mbeere have been under mutual influence from external donors. The three items under the keyword *to slap* in (201) are considered loans based on their aberrant shape and restricted distribution:

(201)	162 to slap	unknown donor	>	*-camʊra*	Mwimbi
			>	*-samʊra*	Murang'a
			>	*-atumura*	Kiambu

165 war	Ma. *áà-àrà / en-árà*	>	*mbaara*	Mwimbi (17, 21), Embu, Mbeere, Western (+ two locations in Miutini)

Example (200) shows that Western, Nithi, Chuka, and Embu-Mbeere are affiliated by shared innovations. Example (201), in turn, suggests mutual borrowing from external donors for these varieties.

The northernmost dialects, Imenti and Nkubu, are somewhat distant to their neighbors on the lower slopes of Mount Kenya in this semantic class (see figure 41 above). The fact that Nkubu and Imenti are set apart from their neighbors is based on the two items, *hunter* (example 202) and *shield* (example 203):

(202)	294 hunter	*mU.ðɔ:gi*	Imenti, Nkubu	cf. *-ðɔ:ga* 'to hunt'
				v e r s u s
		m.u:gia	Miutini, Igoji, Nithi	cf. *-u:gi̱a* 'to hunt'
		mU.gwɪ:mi	Mwimbi (17, 21), Muthambi (24, 25), Chuka, Embu, Mbeere, Murang'a	< CB *-gʉ́ím- C.S. 90 'to hunt'
		mU.ʃimi, mU.sɪɪmi	Kamba	cf. *-ʃima, -sɪɪma* 'to hunt'
		mU.ɦɪti	Western	cf. *-ɦɪta* 'to hunt'

In all of the above cases in (202), the different dialects use nominalizations of the relevant verbs for *to hunt* (cf. *293 to hunt*). Imenti and Nkubu are set apart from all their neighbors by using a unique form. The form *mU.ðɔ:gi* shows no indication of borrowing, and we may assume that it is a genuine form in the northernmost dialects. In the case of *shield*, in turn, Imenti and Nkubu borrowed from Maasai, which, yet again, sets these dialects apart from most other varieties:

(203)	302 shield	Ma. *e-lɔ́ŋɔ́*	> *rɔŋɔ*	Imenti, Nkubu (+ Miutini, Tharaka)
		CB *-gàbò C.S. 756	> *ng(a)ɔ*	all remaining varieties

The two examples (202) and (203) may – at least partially – explain the relatively high distances between Imenti and Nkubu versus all other varieties. In general, however, bundled isoglosses are difficult to identify. The particular outcome shown for the eastern dialects in figure 41 above must, consequently, be viewed as the sum result of all items reviewed in this field.

In regard to 'Warfare and Hunting', the following items in (204) attest to downhill borrowing:

(204)		**Mt. Kenya**	**Kamba**
	160 quarrel	*nkarari* (Chuka)	*ngalali*
		ngarari (Embu)	*U.kalalya, U.kakalyɔ*

161 to quarrel	*-kararania* (Chuka, Embu)	*-kalalaia, -kalalia*
168 to chase away	*-rʊngia* (Tharaka)	*-lʊngia, -lʊngya*

Uphill borrowing is, in contrast, unattested in this field. In Kamba, the aberrant shapes and restricted distribution of the following items in (205) indicate external borrowing from unknown donors – they set Kamba apart from the remaining varieties:

(205) External loanwords in Kamba

162 to slap	*-mandʊla, -maalıkya*
168 to chase away	*-lʊnza*
	-lilinga
298 to shoot	*-ıtʃa ıvuti, -kʊna ıvuti*
304 trap	*kı.lɔɔ*

Swahili and Maasai have influenced a total of three items each in this semantic domain:

(206) **a. Swahili loanwords**

162 to slap	Sw. *-piga kofi*	>	*-kʊna ı.kɔbi*	Kamba
		>	*-ringa ıkɔːbi*	Ndia
		>	*-ɦʊːra nkɔːbi*	Mwimbi (20), Tharaka (40)
		>	*-bʊːra nkɔːbi*	Mbeere (35-38)
		>	*-ringa (na) rʊ.be*	Meru, Igoji, Chuka, Embu (31-34), Tharaka (41-44), Nyeri, Mathira, Gichugu
184 to command	Sw. *-amuru*	>	*-amʊlıða*	Kamba (69)
		>	*-amʊriða*	Nyeri, Gichugu
	Sw. *lazimisha*	>	*-laðimiða*	Kamba (58)
		>	*-lasimiʃa*	Kamba (96)
		>	*-lasimiða*	Kamba (56)
309 fishhook	Sw. *nodana*	>	7 forms	all of CKB except for Meru

b. Maasai loanwords (Möhlig 1974a; Tucker & Mpaayei 1955)

165 war	Ma. *áà-àrà*	>	*mbaara*	Mwimbi (17, 21), Embu, Mbeere, Western (+ two locations in Miutini)

183 oath	Ma. *ol-mumáì*	>	*muːma*	Eastern, Western
		>	*muma*	Kamba
302 shield	Ma. *e-lɔ́ŋɔ́*	>	*rɔŋɔ*	Meru, Igoji, Tharaka

In terms of Swahili contact in this field, only the item *fishhook* shows widespread usage of Swahili *ndoana*. This relates to the fact that fishing is a generally uncommon activity in the Kenyan Highlands. The Swahili items under the keyword *to command* in (206) above may relate to military expeditions run by the British during the colonial period.
The Maasai vocabulary in (206) relates to warfare as well. In section 1.2.2, I pointed out that the Maasai had a renowned fighting force at their disposal in pre-colonial times. According to Muriuki (1974), their military strategy, for example, was copied by the Bantu speakers of Mount Kenya. The items *war*, *oath*, and *shield* seem to represent the military prestige of the Maasai prior to colonialism.
In sum, the particular outcome of the quantitative analysis in this field is due to divergence in the one hand and external contact on the other. Conceptual issues contribute to the diversity in this field. In general, only eight out of 23 items reviewed in this field seem to be conservative in all of Central Kenya Bantu:

163 to beat somebody /	171 to hide (CB *-pi̯c- C.S. 1546)	300 to pierce
164 to hit, strike (PB *-pʊ̀ʊd- 2628)	295 bow (CB *-tá C.S. 1631)	301 to kill (CB *-búd- C.S. 184)
166 to fight (CB *-dù- C.S. 675)	299 spear (CB *-tu̯mó C.S. 1867)	

Table 142: Stable concepts in the field 'Warfare and Hunting' in all of CKB

The following items are considered unstable in Kamba:

External borrowing	**Internal borrowing (downhill)**	**Semantic change**
162 to slap (Sw.)	160 quarrel /	308 to fish
168 to chase away	161 to quarrel	309 fishhook
183 oath (Ma.)	168 to chase away	
184 to command (Sw.)		
298 to shoot		
304 trap		
309 fishhook		

Table 143: Unstable concepts in the field 'Warfare and Hunting' in Kamba

The eastern and western dialects have been less affected by borrowing in this field (internal borrowing is unattested). The following items are unstable in Eastern and Western:

External borrowing	**Semantic change**
162 to slap (Sw.)	293 to hunt / 294 hunter (Gikuyu)
165 war (Ma.)	308 to fish
183 oath (Ma.)	
302 shield (Ma.) (Eastern)	
309 fishhook (Sw.)	

Table 144: Unstable concepts in the field 'Warfare and Hunting' in Eastern and Western

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	divergence (ex. 196); unique innovation in Kamba (ex. 197)	Kamba *less* affected by Maasai (ex. 198) but *more* affected by unknown donors (ex. 205) and Swahili (ex. 206)	Downhill borrowing (ex. 204) not strong enough to bridge the divide Kamba vs. Rest
West-East	low	shared innovation (200)	Mutual contact w/ external donors (201)	Both inheritance and contact responsible for low distance
Imenti-Nkubu vs. East	high	possibly unique innovation in Imenti-Nkubu (ex. 202)	Maasai contact most severe in Imenti and Nkubu (ex. 203)	Contact w/ Maasai distanced Imenti-Nkubu from their neighbors

Table 145: Summary of the qualitative analysis in the field 'Warfare and Hunting'

Total number of items	23	
Inconclusive cases	0	
	23	
Items affected by borrowing	Kamba	9 (39%)
Downhill: 2 Swahili: 3 Maasai: 3	Western	5 (22%)
	Eastern	5 (22%)
Average borrowability		**27,6%**
Loanword typology (Tadmor 2009)		27,9%

Table 146: Domains statistics for the field 'Warfare and Hunting'

11. Food and Drink

This field belongs to the upper half of the loanword typology (Haspelmath and Tadmor 2009a). However, it does not constitute one of the 'top candidates' of borrowability, as it still ranks below 30 percent (29,3%). In total, 48 items are reviewed in this field:

220 cooking stones	(CB *-táp- C.S. 1681)	(CB *-kʊ́nik- C.S. 1268a)
(CB *-pígà C.S. 1548, Sw. *jiko*)	228 to carry water	235 to uncover
221 to cook (CB *-dʊ́g- C.S. 734)	229 to pour (CB *-yɨ̀t- C.S. 2094)	(CB *-kʊ́nud- CS 1268b)
222 to fry (CB *-kádang- C.S. 982)	230 to shake tr. (Sw. *-suka*)	236 to cut
224 to boil (Sw. *-chemka*)	231 to strain (CB *-cúng- C.S. 419)	(CB *-tém- C.S. 1703, Cush. *tlaaq)
225 metal cooking pot (Sw. *sufuria*)	232 to fill(inconclusive)	238 to pound
226 earthen water pot (Sw. *mtungi*)	233 to mix	239 to grind (CB *-cɨ̀d- C.S. 350)
227 to draw water	234 to cover (a pot)	240 mortar

241 pestle	388 to drink (CB *-nyṷ- C.S. 1397)	400 cassava (inconclusive)
247 bottle (Sw. *chupa*)	389 egg (CB *-tṷmbí C.S. 1873)	402 yam (CB *-kúá C.S. 1166)
311 to bite (CB *-dúm- C.S. 696)	390 honey	403 pepper (Sw. *piripiri*)
381 hunger	(CB *-júkì C.S. 962, Ma. *en-áishó*)	405 flour (CB *-tṷ C.S. 1856)
382 to eat (CB *-dí C.S. 550)	393 oil (CB *-gṷtà C.S. 914)	406 maize (inconclusive)
383 food (CB *-díó C.S. 554)	394 banana	407 millet (CB *-bèdé C.S. 70)
384 to swallow	395 orange (Sw. *chungwa*)	408 rice (Sw. *mchele*)
(CB *-mèd- C.S. 1294)	396 sugar cane	558 to taste (Ma. *à-ìshám.ìshám*)
385 to be satiated	397 mango fruit (Eng. *mango*)	594 sweetness (CB *-díó C.S. 554)
386 to belch	398 beans (Sw. *maharagwe*)	
387 thirst (inconlusive)	399 tomato (Sw. *nyanya*)	

Table 147: Lexical items reviewed in the field 'Food and Drink'

The multidimensional scaling of the dialectometrical results of this domain renders the picture shown in figure 42 below. Again, Central Kenya Bantu shows a general three-way split: Kamba is most distant to all other varieties. Most of the eastern dialects are grouped fairly closely in the lower left part of the picture. In regard to culinary terminology, they are not as distinct from each other as in the overall results: Some of the clusters within Eastern overlap, e.g. Tharaka and Muthambi. The northernmost varieties, Imenti and Nkubu, are – albeit slightly – set apart from all their neighbors in the eastern foothills.
In general, figure 42 confirms the overall outcome of the lexico-statistical calculations (figure 29 in section 3.2.1). However, while being most closely affiliated with the eastern varieties in the overall outcome, Embu-Mbeere and Chuka are closest to the western cluster in regard to the semantic domain 'Food and Drink'.
In short, Kamba is set apart from all other varieties. Most eastern dialects are separate from the rest of Central Kenya Bantu as well. Embu-Mbeere, Chuka, and the western dialects are relatively close to each other in this field:

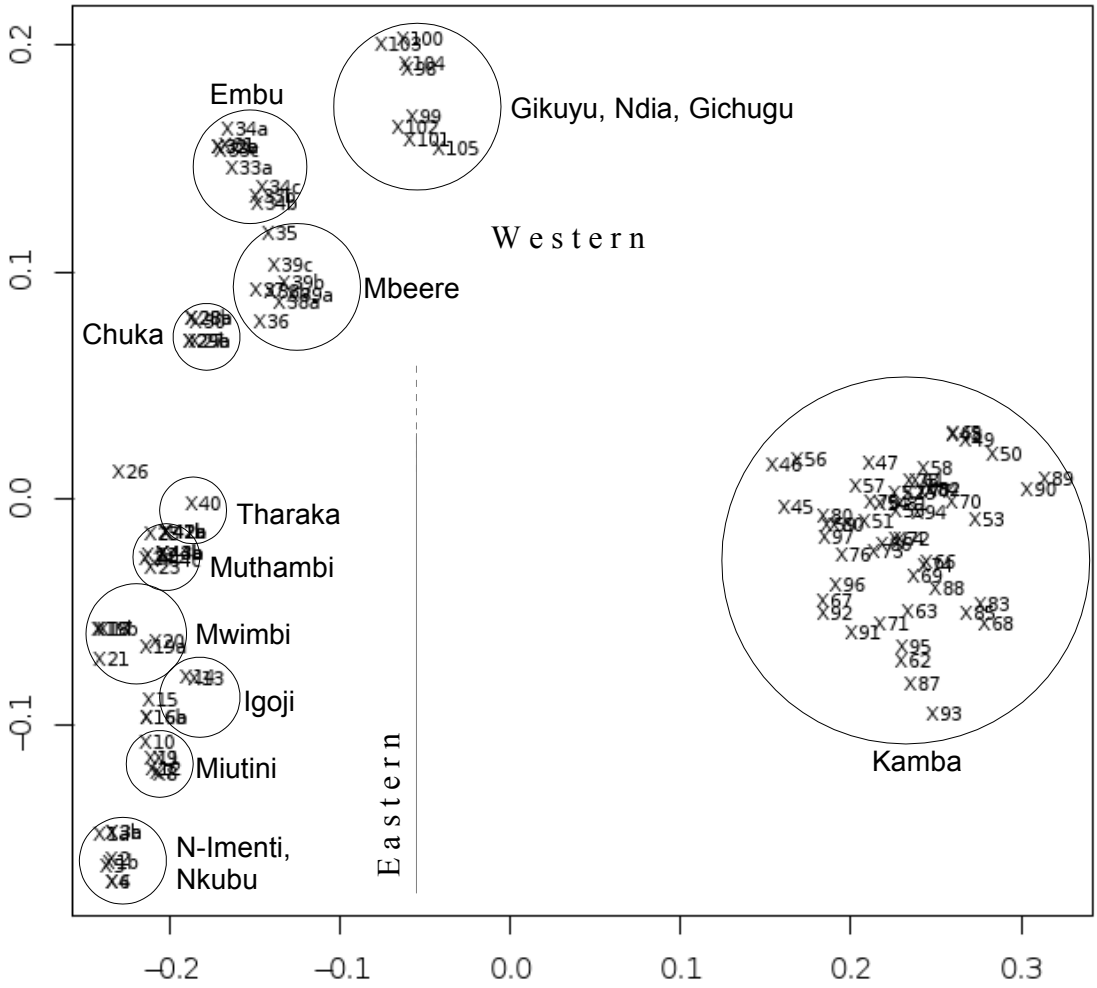


Figure 42: Multidimensional scaling of lexical distances in the field 'Food and Drink'

The following five items in (207) are regular throughout all of Central Kenya Bantu and non-diagnostic from a dialectological perspective:

(207)	221 to cook	*-(r)u(g)a*	< CB CB *-dʊ́g- C.S. 734
	222 to fry	*-ka:(r)anga*	< CB *-kádang- C.S. 982
	311 to bite	*-(r)ʊma*	< CB *-dúm- C.S. 696
	393 oil	*ma.(g)uta*	< CB *-gʊ́tà C.S. 914
	405 flour	*mʊ.tu*	< CB *-tʊ̀ C.S. 1856

Kamba is, yet again, set apart from all other varieties in a number of items. The following cases in (208) attest to unique innovations in Kamba:

(208)	227 to draw water	*-uta*	only in Kamba
			versus
		-taña, -tava, -taba	all of CKB < CB *-táp- C.S. 1681

234 to cover	*-bwʸɪka*	only in Kamba	
		v e r s u s	
	-kunɪk(ɪr)a	all CKB < CB *-kǫ́nik- C.S. 1268a	
402 yam	*ndʊma*	only in Kamba	
		v e r s u s	
	gɪ.kʊa(a), gɪ.kwa, kɪ.kwa	all CKB < CB *-kúá C.S. 1166	

The above items in (208) all show that the relevant Common Bantu forms occur in all of Central Kenya Bantu (including Kamba). Kamba shows additional forms not attested otherwise, which distinguish Kamba from all remaining varieties; they are regular in shape and mostly widespread, thus, providing no indication of borrowing
Kamba has been exclusively influenced by outside donors which, again, distances Kamba from all its neighbors:

(209) External Loanwords in Kamba

231 to strain	*-kɛla, -kɛlɛka*	only in Kamba	< unknown donor
233 to mix	*-bulaɲia, -bulania*	only in Kamba	< unknown donor
236 to cut	*-tila*	only in Kamba	< Cush. *tlaaq
378 thirst	*mʊ.ɲalɔ, mʊ.ɲaʊ*	only in Kamba	< unknown donor

In the case of *tomato* in (210) below, Kamba has been less affected by Swahili contact than the remaining varieties, i.e. just like its neighbors, it does show a Swahili loan, however, another unrelated form is attested as well:

(210)

399 tomato	*ndindi*	only in Kamba
		v e r s u s
	ɲaɲa	all of CKB (incl. Kamba) < Sw. *nyanya*

In sum, Kamba is set apart from its neighbors based on unique innovations (example 210). Exclusive language contact with outside languages has additionally distanced Kamba from its neighbors (example 209). In one case (example 210), not all of Kamba has been affected by Swahili – unlike the remaining varieties, that all show the relevant Swahili loan under the keyword *tomato*.
The separation between most of the eastern dialects (i.e. from Muthambi to Imenti, including Tharaka) and the remaining varieties seems to be based on divergence. Again, bundled isoglosses are hard to find in this context. The following examples in (211) may suffice to illustrate that the eastern dialects agree with Kamba in some cases, while congruence between Eastern and Western is shown by others:

(211) **a. Eastern & Western versus Kamba**

390 honey	CB *-júkì C.S. 962	>	*(g)ʊ.ʊkɪ*	Eastern, Western
		>	*ʊkɪ*	Kamba

b. Eastern & Kamba versus Western

239 to grind	CB *-cị̀d- C.S. 350	>	*-ðia*	Eastern, Kamba
		>	*-ðɪa*	Western

Figure 42 above shows particularly low distances between the western dialects and Embu-Mbeere as well as Chuka. On the one hand, we may assume shared innovations. On the other hand, mutual Swahili influence seems to have resulted in the proximity between these varieties.
The following case (212) shows a connection between Western and its immediate montane neighbors Embu-Mbeere and Chuka. Based on the widespread distribution and regular shapes, the forms seem to be shared innovations:

(212)	228 to carry water	*-kuua*	Embu, Mbeere, Chuka, Western (*-kua* in Kamba)
		v e r s u s	
		-kamata	Meru, Igoji, Nithi, Tharaka

The item *metal pot*, borrowed from Swahili in all of Central Kenya, unites Western and Embu-Mbeere under the form C:

(213)	225 metal cooking pot	1.	*cuburi̱a*	A_1	Meru, Igoji
		2.	*cuburia*	A_2	Nithi, Chuka
		3.	*subulia*	A_3	Kamba (72, 86)
		4.	*ciriːa*	B_1	Mbeere (38, 39a, 39b)
		5.	*cʊːriːa*	B_2	Mbeere (36, 38) Tharaka
		6.	*(ɪ).silia ~ silya*	B_3	Kamba (widespread)
		7.	*sulia ~ sulya*	B_4	Kamba (82-84)
		8.	*ɪ.silia*	B_5	Kamba (widespread)
		9.	*(ɪ.)sulia*	B_6	Kamba (88, 91, 95, 96)
		10.	*ðapuri̱a, cafuri̱a*	C_1	Embu
		10.	*ðaburiːa*	C_2	Embu (35), Mbeere (39c)
		11.	*ðuburia*	C_3	Nyeri, Ndia (Western)
		12.	*ðaburia*	C_4	Kiambu, Murang'a, Mathira, Gichugu (Western)
		13.	*sɔlia*	D	Kamba (widespread)

According to Möhlig (2014: 79), the item *metal pot* indicates different waves of Swahili contact. Form C in (213) above goes back to the Hindi-Swahili term *safuria,* originating in the Swahili dialects on Kenya's northern coast. The items labeled as C, attested in Embu-Mbeere and Western, seem to go back to this original Hindi-Swahili word *safuria*, while

Meru *cuburi̱a* (A_1) represents modern Swahili *sufuria* – Embu-Mbeere and Western indicate borrowing from North-Swahili. In section 3.1.2, I argued that the integration of Swahili /s/ as /ð/ is typical of Western (cf. correspondence series *C_3). Therefore, we may argue that the northern Swahili term *safuria* was first transmitted into Western (via West-Kamba[31]) as *ðaburia*, before it diffused into Embu and Mbeere. In any case, example (213) above shows a special connection between Western and Embu-Mbeere based on mutual Swahili borrowing.
Embu-Mbeere and Western, the above discussion shows, are relatively close to each other in this field. It needs to be recognized that this is due to the sum calculations in this field, as only a few items separate Western-Embu-Mbeere from the remaining varieties. Example (212) shows one case of a possible shared innovation in these dialects. In general, Embu-Mbeere and Western are relatively close in this field; mutual Swahili influence may have even decreased the distances between these varieties. In total, thirteen items suggest Swahili contact for Central Kenya Bantu:

(214)	225 metal pot	Sw. *sufuria*	> *ðuburia*	Nyeri, Ndia
			> *cuburi̱a, cuburia,*	Meru, Igoji, Nithi, Chuka
			> *subulia*	Tharaka
			> *cU:ri:a*	Kamba
		Sw. *safuria*	> *ðaburi:a, ðaburia*	Embu, Gikuyu
		Sw. *sifilia*	> *ɪ.silia*	Kamba
	224 to boil	Sw. *-chemka*	> *-camUka, -samUk(y)a*	Kamba, Nyeri, Murang'a
	226 earthen pot	Sw. *mbisu*	> *mbisɔ, mbisU*	Kamba
	229 to pour	Sw. *-tia*	> *-tia*	Nyeri (98)
	230 to shake	Sw. *-suka*	> *-ðuk(ani)a, -ðukya*	Kamba
	233 to mix	Sw. *changanya*	> *-ðɔngɔndania*	Nyeri (99)
	247 bottle	Sw. *chupa*	> *mU.cu:ba, mU.cU:ba* etc.	all of CKB
	290 cooking stones	Sw. *jiko*	> *yɪ.ikɔ*	Kamba
	395 orange	Sw. *chungwa*	> *ɪ.cungwa, ɪ.sungwa* etc.	all of CKB
	398 beans	Sw. *maharagwe*	> *ma.alakwe*	Kamba
	403 pepper	Sw. *pilipili*	> *biribiri*	Western
	408 rice	Sw. *mchele*	> *mU.cɛ:rɛ, mU.sɛ:rɛ* etc.	all of CKB
	594 sweetness	Sw. *sukari*	> *ðukari*	Nyeri (99)

31 After the term reached Mount Kenya it seems to have undergone different stages of adaptation in Kamba, i.e. deletion of /f/, substitution of /r/ with /l/ as well as the merger of /a/ and /u/ to yield /ɔ/, e.g. in *sɔlia*. The western and Embu-Mbeere forms seem to represent a time prior to this process, i.e. *ðaburia* survived in these dialects while it was successively modified in Kamba (cf. Möhlig 2014: 79).

Most items in (214) are relatively restricted in distribution. Only the keywords *metal pot*, *bottle*, *orange*, and *rice* show Swahili loanwords in all of Central Kenya Bantu (which relates to their economic significance in trading). These are the only items that affected the eastern varieties. Ten items attest to language contact between Swahili and Kamba; the same number of items has affected the western dialects.
Only two items show borrowing from Maasai. In respect to the meaning *390 honey*, the genuine Bantu word relating to CB *-júkì C.S. 962 has been replaced in the northern dialects Imenti and Nkubu by the loan *naincᴜ*, which goes back to Maasai *en-áíshó* (Tucker & Mpaayei 1955: 295). The concept *558 to taste* is expressed by the forms *-cɛma, -cama,* and *-sama*, all borrowed from Maasai *à-ìshám.ìshám* (Möhlig 1974a: 181). Only one item in this field, *397 mango*, shows the English loan translation *i.tunda rɪa mangɔ* 'mango fruit'.
I mentioned above in the context of example (213) that the item *metal pot* may, according to Möhlig (2014: 79), make a case for uphill borrowing, i.e. Swahili words transferred into the highlands via Kamba. Downhill borrowing is attested to by the following items in (215):

(215)			**Mt. Kenya**		**Kamba**
234 to cover	CB*-kʉ́nik- C.S. 1268a	>	*-kunɪkɪra*	borrowed as	*-kunɪkilya*
383 food[33]	CB *-díó C.S. 554	>	*ɪ.riːɔ*	borrowed as	*lɪu*
384 to swallow	CB *-mèd- C.S. 1294	>	*-mɛria*	borrowed as	*-mɛlya*
386 to belch			*-ɛrᴜːka*	borrowed as	*-ɛlᴜka*

The following 20 items refer to stable concepts in all of Central Kenya Bantu:

221 to cook (CB *-dʉ́g- C.S. 734)	239 to grind (CB *-cɨ̀d- C.S. 350)	394 banana (*-dig-)
222 to fry (CB *-kádang- C.S. 982)	240 mortar (*-tid-)	396 sugar cane (*-gwa)
227 to draw water	241 pestle	402 yam (CB *-kúá C.S. 1166)
(CB *-táp- C.S. 1681)	311 to bite (CB *-dúm- C.S. 696)	405 flour (CB *-tʉ̀ C.S. 1856)
228 to carry water	382 to eat (CB *-dí C.S. 550)	407 millet (CB *-bèdé C.S. 70)
235 to uncover	388 to drink (CB *-nyʉ́- C.S. 1397)	
(CB *-kʉ́nud- CS 1268b)	389 egg (CB *-tʉ́mbí C.S. 1873)	
238 to pound	393 oil (CB *-gʉ́tà C.S. 914)	

Table 148: Stable concepts in the field 'Food and Drink' in all of CKB

Kamba is, again, the most severely affected variety in regard to external and internal borrowing:

External borrowing	**Internal borrowing (downhill)**
220 cooking stones (Sw.)	234 to cover
224 to boil (Sw.)	383 food
226 earthen water pot (Sw.)	384 to swallow
225 metal cooking pot (Sw.)	386 to belch
226 water pot (Sw.)	403 pepper (external?)
230 to shake (Sw.)	

33 cf. *026 right hand* – the concept *food* seems culturally noteworthy, see semantic field *3. The Body*

231 to strain
233 to mix
236 to cut (Cush.)
247 bottle (Sw.)
395 orange (Sw.)
398 beans (Sw.)
399 tomato (Sw.)
408 rice (Sw.)
558 to taste (Ma.)

Table 149: Unstable concepts in the field 'Food and Drink' in Kamba

Western, Embu-Mbeere, and Chuka have been affected by external borrowing in the following cases (instances of internal borrowing cannot be identified in this field):

224 to boil (Sw.)	247 bottle (Sw.)	594 sweetness (Sw.)
226 earthen water pot (Sw.)	395 orange (Sw.)	558 to taste (Ma.)
225 metal cooking pot (Sw.)	397 mango (Eng.)	549 sweetness (Sw.)
229 to pour (Sw.)	403 pepper (Sw.)	
233 to mix (Sw.)	408 rice (Sw.)	

Table 150: External borrowing in the field 'Food and Drink' in Western, Embu-Mbeere, and Chuka

The eastern dialects are the least affected group regarding external borrowing in this field:

225 metal cooking pot (Sw.)	395 orange (Sw.)	558 to taste (Ma.)
247 bottle (Sw.)	399 tomato (Sw.)	
390 honey (Ma.)	408 rice (Sw.)	

Table 151: External borrowing in the field 'Food and Drink' in Eastern

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	unique innovation in Kamba (ex. 208)	Kamba most affected by unknown donors (ex. 209) and Swahili (ex. 214)	Downhill borrowing (ex. 215) not strong enough to bridge the divide Kamba vs. Rest
West-Embu-Mbeere-Chuka	low	possibly shared innovation (ex. 212)	Mutual borrowing from Swahili (ex. 213, 214)	no bundled isoglosses
East vs. Rest	high	-	-	no bundled isoglosses; distance based on sum calculations; low amount of external borrowing

Table 152: Summary of the qualitative analysis in the field 'Food and Drink'

Total number of items	48	
Inconclusive cases	4	
	44	
Items affected by borrowing	Kamba	20 (45%)
Downhill: 5 Swahili: 13 Maasai: 2 English: 1	Western / Embu-Mbeere / Chuka	13 (29%) 7 (16%)
	Eastern	
Average borrowability		**30,0%**
Loanword typology (Tadmor 2009)		29,3%

Table 153: Domains statistics for the field 'Food and Drink'

12. Agriculture and Vegetation

The domain 'Agriculture and Vegetation' is the first semantic class investigated in this study that reaches the 30 percent benchmark in Haspelmath and Tadmor (2009a). The following 50 items are reviewed in this field:

209 garden (CB *-gùndà C.S. 897)	280 to herd (CB *-dí- C.S. 550)	400 cassava (inconclusive)
236 to cut	281 bull	402 yam (CB *-kúá C.S. 1166)
(CB *-tém- C.S. 1703, Cu. *tlaaq)	282 cow (CB *-ŋɔmbɛ C.S. 1402)	406 maize (inconclusive)
265 field (CB *-gùndà C.S. 897)	283 to milk (CB *-kám- C.S. 994)	407 millet (CB *-bèdé C.S. 70)
266 to cultivate	284 to churn (Sw. *-suka*)	440 land
(CB *-dìm- C.S. 568)	285 donkey	460 plant (CB *-mèd- C.S. 1293)
267 to dig a hole	(Sw. *punda*, Ma. *o-síkìrià)*	461 to sprout
(CB *-dìm- C.S. 568, Cush. *fool)	286 goat (CB *-búdį C.S. 185)	(CB *-mèd- C.S. 1293)
268 hoe	287 sheep (Cush. *gɔndu)	462 tree (CB *-tí C.S. 1729)
270 to plant	288 pig	463 root (CB *-dį C.S. 591)
(CB *-pànd- C.S. 1432)	(CB *-gùdùbè C.S. 888)	464 branch (inconclusive)
272 to harvest (CB *-kèc- p.s. 287)	289 chicken	465 leaf
237 to pluck fruit (Ma. *a-shúk*)	(CB *-kúkú C.S. 1203)	466 thorn (CB *-yígà C.S. 1997)
274 to pick up (inconclusive)	290 cock (Sw. *jogoo*)	467 fruit
275 load (CB *-dį́gò C.S. 614)	394 banana	468 unripe
276 stock of grain	395 orange (Sw. *chungwa*)	(CB *-bícì C.S. 102, Sw. *-bichi*)
277 barn	396 sugar cane	469 to ripen
278 cattle (CB *-ŋɔmbɛ C.S. 1402)	397 mango (Eng. *mango*)	470 to be rotten (
279 to keep cattle	398 beans (Sw. *maharagwe*)	CB *-bòd- C.S. 153)
(CB *-dèd- C.S. 310)	399 tomato (Sw. *nyanya*)	472 grass (PB *nyàkí 8594)

473 pumpkin

(CB *-dèngè C.S. 543, Sw. *boga*)

Table 154: Lexical items reviewed in the field 'Agriculture and Vegetation'

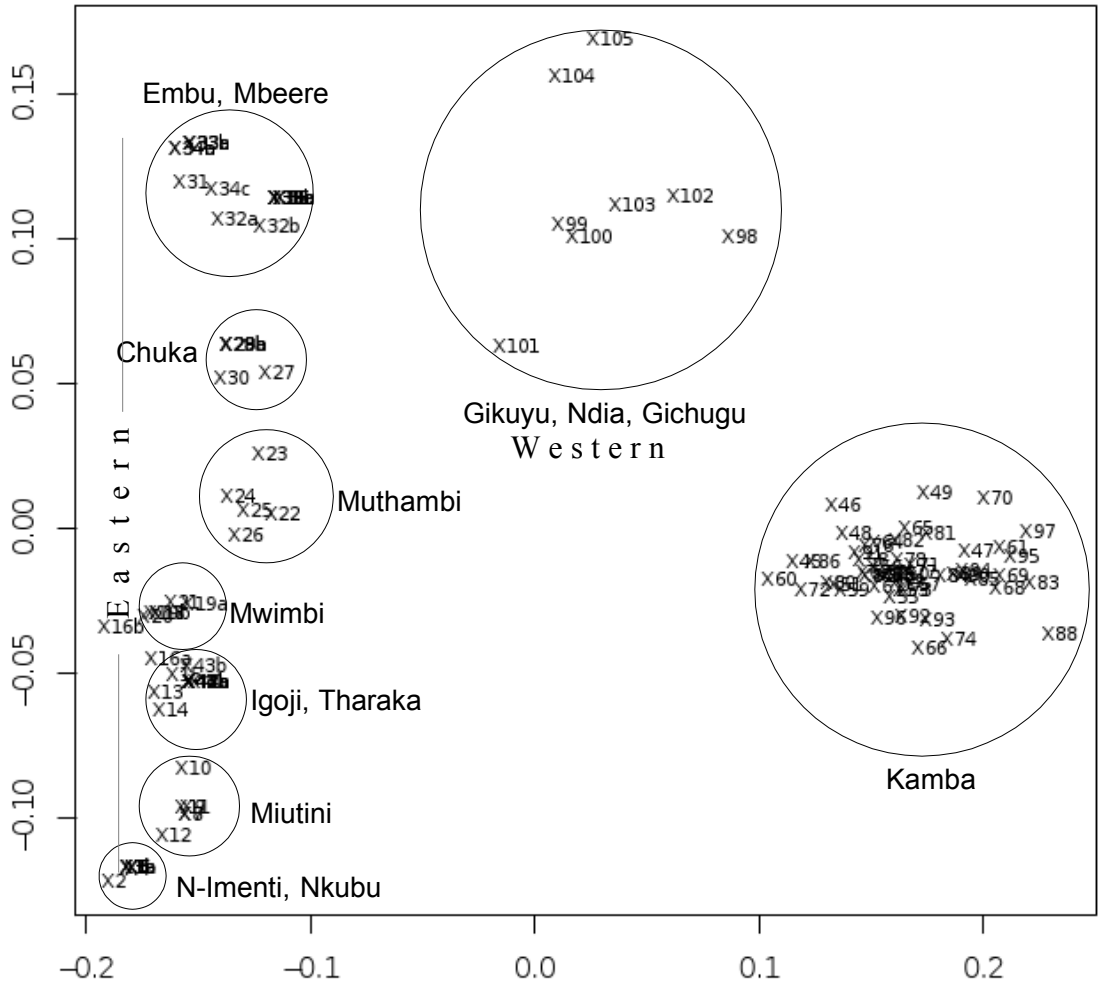


Figure 43: Multidimensional scaling of lexical distances in the field 'Agriculture & Vegetation'

Figure 43 shows a general three-way split of Central Kenya Bantu: Both the western dialects and Kamba are relatively distant from the remaining varieties. Embu and Mbeere are relatively closely linked to their western neighbors, however, still considerably distant from the western dialects of Gikuyu, Gichugu, and Ndia. All dialects on the eastern slopes of Mount Kenya are fairly distinct from each other.

The following items in (216) are identical all throughout Central Kenya and considered non-diagnostic in dialectological terms:

(216)	266 to cultivate	*-(r)ɪma*	< CB *-dìm- C.S. 568
	275 load	*mʊ.(r)i(g)ɔ*	< CB *-dį́gò C.S. 61
	278 cattle	*ŋɔmbɛ*	< CB *-ŋɔmbɛ C.S. 1402
	283 to milk	*-kama*	< CB *-kám- C.S. 994
	289 chicken	*ngʊkʊ*	< CB *-kúkú C.S. 1203

394 banana	*ɪ.(r)i(g)ʊ*	< *-digu
460 plant	*mʊ.mɛra*	< CB *-mèd- C.S. 1293
462 tree	*mʊ.tɪ*	< CB *-tí C.S. 1729
467 fruit	*ɪ.tunda / i.tunda*	< *-tunda

In a number of cases, conceptual issues contribute to the diversity within Central Kenya in general and within Western in particular. I showed above in the context of the semantic domain *4. 'The Physical World'* that there are conceptual differences regarding the item *440 land:* In English, this word may denote a variety of concepts, e.g. the territory of a nation or a piece of real estate. In Central Kenya Bantu, too, this item shows different meanings, such as *dust*, *garden* or *field*. The latter concept is assigned a keyword of its own – *265 field*. This keyword shows a number of concepts: In some locations of Western and Kamba, we find forms relating to CB *-gùndà C.S. 897 'garden'. We also find the Gikuyu form *kɪ.ɦa:rɔ* relating to the verb *-ɦara* 'scratch, scrape, remove' (Benson 1964: 141). In addition, two distinct concepts of Swahili are found – *kiwanja* 'open field, playing field' and *shamba* 'field, plot for cultivation'. In short, these different concepts contribute to the relatively high diversity under the keyword *field*.

The same holds for the items *276 stock of grain* and *277 barn*: In both cases, we find more than a dozen distinct forms. The concept *stock of grain* is, for example, expressed in a number of dialects by terms relating to CB *-kèc- p.s. 287 'harvest' as well as CB *-dɟgò C.S. 61 'load'. We also find the form *kɪ.inga* in Kamba, which also occurs under the meaning *barn* and denotes a traditional container made of sticks and grass (Möhlig 2014: 282). The concept of *barn* is, in turn, expressed by various concepts, such as *kɪ.sʊmba* 'room' (< Sw. *chuma*) or *ky.ɔndɔ* 'basket' (both Kamba).

There is also a number of verbs showing conceptual issues in this field: The item *284 to churn* is expressed by the notion of beating in Gikuyu and Embu-Mbeere (*-ɦʊ:ra* and *-vʊ:ra* respectively), literally describing the process of converting cream into butter. This type of circumscription unites Gikuyu and Embu-Mbeere.

The item *461 to sprout* is expressed by forms relating to the relevant Common Bantu item *-mèd- C.S. 1293 in most dialects. In some varieties on the eastern slopes, e.g. Meru and Tharaka, the form *-u:ma* is attested under this keyword, which also appears with the meaning *083 to come from.* According to Möhlig (1974a: 117), *-u:ma* may also mean 'to finish'.

Finally, the notion of *469 to ripen* is expressed by *-ɪ(:r)ua* in Western, Mbeere, and Kamba, presumably a genuine form. In addition, we find *-gunda* in most eastern varieties (cf. CB *-gùndà C.S. 897 'garden') and *-tu:nɪba* in Embu. The latter, according to Möhlig (1974a: 173), relates to *-tu:nɛ* 'red'. All of the conceptual differences discussed above contribute to the relatively diverse picture depicted in figure 43.

Figure 43 shows that Kamba is, yet again, relatively far apart from its neighbors in this semantic domain. This is due to the fact that Kamba disposes of a number of forms that are unattested in the remaining varieties. In the following cases in (217), we may assume that the relevant forms are genuine in Kamba, as they are mostly widespread in distribution and regular in shape. In other words, there are no signs of borrowing:

(217)	278 cattle	*ŋɔmbɛ*	all of CKB	< CB *-ŋɔmbɛ C.S. 1402
		indɔ	additional form in Kamba	

281 bull	*ndɛ:gwa*	Eastern, Western
	ndɛᵍwa	Kamba
	nzaU	additional form in Kamba
402 yam	*gɪ.kwa, kɪ.kwa* etc.	all of CKB
	ndUma	additional form in Kamba

In addition to the items in (217) above, Kamba has been distanced from its neighbors due to phonological divergence in regard to the following Common Bantu item:

(218)	466 thorn	CB *-yígà C.S. 1997	>	*mU.ɪᵍwa*	Kamba
				v e r s u s	
			>	*mU.i:gua, mU.ɪ:gwa etc.*	East, West

Moreover, Kamba is set apart due to exclusive borrowing from external donors:

(219)	236 to cut	Southern Cush. *tlaaq	>	*-tila*	only in Kamba
	267 to dig	Southern Cush. *fool	>	*-libula*	only in Kamba
	273 to pluck	unknown donor	>	*-kɔlanɪa*	only in Kamba
	287 sheep	unknown donor	>	*ɪ.lUnga*	only in Kamba
	290 cock	unknown donor	>	*nzɔkɔlɔ*	only in Kamba
	398 beans	Sw. *maharagwe*	>	*ma.alakwe*	only in Kamba

In contrast, Kamba seems to be the only variety of Central Kenya Bantu not affected by outside donors in the case of *donkey*:

(220)	285 donkey	*ɪ.ŋɔi*	Kamba	
			v e r s u s	
		ntigiri	Meru, Igoji, Nithi, Tharaka	< Ma. *o-síkìrìà*
		mpunda, (m)bunda	Embu, Mbeere, Chuka, Western	< Sw. *punda*

In the case of *tomato*, Kamba has been less affected by Swahili than the remaining varieties, i.e. while most Kamba speakers have adopted the relevant Swahili loan, some locations in Kamba seem to have resisted borrowing in this case:

(221)	399 tomato	*ɲaɲa*	all of CKB < Sw. *nyanya*
		ndindi	additional form in Kamba

In sum, Kamba is distinguished from all other varieties by unique innovations (example 217), exclusive outside borrowing (219) as well as the fact that it has been less affected by Maasai and Swahili influence than Eastern and Western in the cases of (220) and (221).
The western dialects, Gikuyu, Ndia, and Gichugu, are set apart from all remaining varieties on the basis of eight items in this field. The following items in (222) may attest to divergence:

(222)	236 to cut	*-tina*	Western (innovation)		
			v e r s u s		
		-tɛma	Eastern, Kamba (< CB *-tém- C.S. 1703)		
	272 to harvest	CB *-kèc- p.s. 287	>	*-gɛðа*	Western
					v e r s u s
			>	*-kɛðа*	Eastern, Kamba
	466 thorn	CB *-yígà C.S. 1997	>	*mU.i:gua*	Western
					v e r s u s
			>	*mU.i:gwa, mU.I:gwa* etc.	Eastern, Kamba

In five cases, the western dialects have been exclusively influence by languages outside the Central Kenyan Highlands:

(223)	273 to pluck fruit	Ma. *a-shúk*	>	*-cɔkanɪrɪria, -sɔkanɪrɪria*	Western only
	290 cock	Sw. *jogoo*	>	*njɔgɔ*	Western only
	470 rotten	unknown donor	>	*-buða*	Western only
	473 pumpkin	Sw. *boga*	>	*mbɔga*	Western only 3
	97 mango	Eng. *mango*	>	*mangɔ*	Western only

In sum, the western dialects are set apart from their neighbors based on divergence (example 222) as well as the exclusive use of Maasai, Swahili, and English loanwords (example 223). The eastern dialects are set apart by a smaller number of items than it is the case with Western and Kamba. It is, yet again, difficult to identify bundled isoglosses that separate all of Eastern from the remaining varieties. In the case of *grass*, however, the eastern dialects are set apart due to phonological divergence:

(224)	472 grass	PB *nyàkí 8594 (Bastin et al. 2002)	>	*ɲaki*	all of Eastern
				v e r s u s	
			>	*ɲɛki*	Western, Kamba

I showed above in examples (218) and (222) that Western and Kamba are each set apart from the eastern dialects in regard to the item *thorn*. This item may be understood as an attestation of the general three-way split of Central Kenya Bantu (East vs. West vs. Kamba) depicted in figure 43 above. It is to be distinguished from the case of *grass* in (224): It does separate the eastern dialects from the remaining varieties; however, it also splits Eastern into a total of three groups:

(225)	466 thorn	CB *-yígà C.S. 1997	>	*mU.i:gwa*	East I: Meru, Igoji, Nithi
			>	*mU.ɪ:gwa*	East II: Embu, Mbeere, Chuka
			>	*mU.ɪ:gua*	East III: Tharaka
					v e r s u s
			>	*mU.ɪᵍwa*	Kamba
					v e r s u s
			>	*mU.i:gua*	Western

There are no other items in this field that would attest to the separation between Eastern and the remaining varieties. The two cases (224) and (225) indicate divergence. In turn, there are no cases suggesting external borrowing or internal diffusion for all of the eastern varieties. The fact that the eastern dialects are rather separate from each other in this domain (see figure 43) suggests that there has not been enough lexical diffusion that would have had a homogenizing effect on all of Eastern. In total, we find only a few cases that indicate borrowing into the eastern dialects. Most of the following external loanwords in (226) have only impacted a limited number of eastern varieties each:

(226)	265 field	Sw. *kiwanja*	>	*kɪ.gwanja*	Muthambi (+ Kamba)
	273 to pluck	Ma. *a-soló*	>	*-ðUrania*	Meru: Imenti, Nkubu
	285 donkey	Ma. *o-síkìrìà*	>	*ntigiri*	Meru, Igoji, Nithi, Tharaka
					(+ *ndigiri* once in Western)
		Sw. *punda*	>	*mpunda*	Igoji (15), Mwimbi (19a),
					Mwimbi (21), Muthambi (23, 24)
			>	*mbunda*	Embu, Mbeere, Chuka
					(+ *bunda* in Western)
	465 leaf	unknown donor	>	*ɪ.bU:ra*	Meru
	468 unripe	Sw. *bichi*	>	*-bɪðɪ*	all of Eastern
					(≠ CB *-bícì C.S. 102; expected form: *-ɪðɪ*)

Only the last item listed in (226) above – *unripe* – has had a homogenizing effect on all eastern dialects. The remaining cases of external borrowing in Eastern seem to have contributed to the diversity of this group, as each item has impacted only a limited number of dialects. Metaphorically speaking, we may say that external borrowing has 'pulled' apart the different varieties on the eastern slopes, while it had a leveling effect only on adjacent locations.

Regarding the total number of affected items, Swahili has been the most influential donor language in this field. Borrowing from Swahili, Maasai, English, and Cushitic in the field 'Agriculture and Vegetation' is summarized in the following list (227):

(227) **a. Swahili**

265 field	Sw. *kiwanja*	> 2 forms in Mwimbi and Kamba
	Sw. *shamba*	> 1 form in Kamba
267 to dig	Sw. *-chimba*	> 1 form in Nyeri and Kamba
268 hoe	Sw. *jembe*	> 7 forms in all of CKB
277 barn	Sw. *chumba*	> 2 forms in Kamba
284 to churn	Sw. *-sukasuka*	> 5 forms in most of CKB
285 donkey	Sw. *punda*	> 4 forms in Chuka, Embu, Mbeere, Gikuyu
		+ scattered on the eastern slopes
290 cock	Sw. *jogoo*	> 1 form in Gikuyu
395 orange	Sw. *chungwa*	> 3 forms in all of CKB
398 beans	Sw. *maharagwe*	> 1 form in Kamba
399 tomato	Sw. *nyanya*	> 1 form in all of CKB
473 pumpkin	Sw. *boga*	> 1 form in Ndia
468 unripe	Sw. *bichi*	> 1 form in all of Eastern

b. Maasai (Tucker & Mpaayei 1955)

273 to pluck fruit	Ma. *a-soló*	> 1 form in Imenti, Nkubu
	Ma. *a-shúk*	> 2 forms in Gikuyu
274 to pick up	Ma. *a-shúk*	> 1 form in Nyeri
285 donkey	Ma. *o-síkìrià*	> 1 form on the eastern slopes

c. English

397 mango	Eng. *mango*	> 1 form in Nyeri

d. Southern Cushitic (Kießling & Mous 2003; Philippson 2013)

236 to cut	Cu. *tlaaq	> 1 form in Kamba
267 to dig	Cu. *fool	> 1 form in Kamba
287 sheep	Cu. *gɔndu	> 3 forms in all of CKB

As far as the distribution of Swahili loans field is concerned in this field, only the items *to churn*, *tomato*, *orange*, and *hoe* have affected the majority of varieties. The latter item – *hoe* – demands a closer investigation, as it may attest to different waves of Swahili contact. In total, we find seven distinct forms relating to Swahili under the meaning *hoe*:

(228)	268 hoe	1.	*gɪ.cɛmbɛ, ɪ.cɛmbɛ*	A_1	Meru, Igoji, Nithi, Chuka, Embu (30-34), Tharaka	Eastern
		2a.	*ɪ.cɛmbɛ*	A_2	Embu (31-33), Mbeere	
		2b.	*i.cɛmbɛ*	A_2	Nyeri, Kiambu, Mathira	Western
		2c.	*i.sɛmbɛ*	A_2	Murang'a, Ndia, Gichugu	
		3.	*ɪ.(y)ɛmbɛ*	A_3	Kamba (most widespread)	Kamba
		4.	*y(ɪ).ɛmbɛ*	A_4	Kamba (less widespread)	
		5.	*y.ɛɛmbɛ*	A_5	Kamba (restricted: 90, 94)	
		6.	*y.ɪmbɛ*	A_6	Kamba (restricted: 58)	
		7.	*ɪ.simbi*	A_7	Kamba (less widespread)	

There are two Common Bantu items with the meaning *hoe*: *-gèmbè C.S. 803 and *-jèmbè C.S. 933. The fact that we find an unusally high amount of similar, yet irregularly corresponding, forms in Central Kenya Bantu may be understood as an indication of language contact.

According to Möhlig (2014: 5), the forms listed in (228) represent contact with different Swahili dialects: The Kamba forms *ɪ.(y)ɛmbɛ* (A_3) and *y(ɪ).ɛmbɛ* (A_4), for example, are borrowed from Northern Swahili of the Lamu area, where *i.yembe* and *yembe* are used. Mombasa Swahili, according to Möhlig (ibid.), shows the form *dyembe* with a palatal affricate. This form is probably the source word for items such as *gɪ.cɛmbɛ* and *ɪ.cɛmbɛ* (A_1) listed in (228) above. On a side note, the traditional cultivating tool in Central Kenya is the digging stick – thus, from an extra-linguistic point of view, borrowing in this case seems probable as well.

Next to the instances of external borrowing, there are three items attesting to internal borrowing in this field. The following two items in (229) show downhill borrowing from Mount Kenya into Kamba:

(229)		**Mt. Kenya**		**Kamba**	
	288 pig	*ngUrUɛ*	>	*ngUlU(w)ɛ*	(≠ CB *-gùdùbè C.S. 888; expected form: *ngUɛɛ*;)
	473 pumpkin	*ɪ.rɛngɛ*	>	*ɪ.lɛngɛ*	(≠ CB *-dèngè C.S. 543; expected form: *-ɛngɛ*)

Uphill borrowing from Kamba into the dialects into the eastern dialects is attested by the item *garden*:

(230)	209 garden	*mU.Unda* (Kamba)	>	*mU.Unda*	Miutini, Tharaka
			>	*m.uunda*	Meru
					(≠ CB *-gùndà C.S. 897; expected form: *mU.gUnda*)

The following items may be considered stable in all of Central Kenya Bantu, i.e. they show no indication of borrowing in any dialect:

266 to cultivate (CB *-dìm- C.S. 568)	281 bull (*-deg-, *njau)	463 root (CB *-dị C.S. 591)
270 to plant (CB *-pànd- C.S. 1432)	283 to milk (CB *-kám- C.S. 994)	466 thorn (CB *-yígà C.S. 1997)
272 to harvest (CB *-kèc- p.s. 287)	289 chicken (CB *-kúkú C.S. 1203)	467 fruit (*-tunda)
275 load (CB *-dį́gò C.S. 614)	394 banana (*-dig-)	472 grass (PB *nyàkí 8594)
278 cattle /	396 sugar cane (*-gwa)	
282 cow (CB *-ŋɔmbɛ C.S. 1402))	402 yam (CB *-kúá C.S. 1166)	
279 to keep cattle	460 plant / 461 to sprout	
(CB *-dèd- C.S. 310)	(CB *-mèd- C.S. 1293)	
280 to herd (CB *-dí- C.S. 550)	462 tree (CB *-tí C.S. 1729)	

Table 155: Stable items in the field 'Agriculture & Vegetation'

In Kamba, twelve items attest to external borrowing from Swahili, Southern Cushitic, and unknown donors, two items suggest downhill borrowing:

External borrowing	**Internal borrowing (downhill)**
236 to cut (Cush.)	288 pig
265 field (Sw.)	473 pumpkin
267 to dig a hole (Cush. / Sw.)	
277 barn (Sw.)	
268 hoe (Sw.)	
237 to pluck fruit	
284 to churn (Sw.)	
287 sheep (Cush.)	
290 cock	
395 orange (Sw.)	
398 beans (Sw.)	
399 tomato (Sw.)	

Table 156: Unstable items in the field 'Agriculture & Vegetation' in Kamba

In the western dialects, eleven items attest to external borrowing:

236 to cut	285 donkey (Ma. / Sw.)	399 tomato (Sw.)
268 hoe (Sw.)	287 sheep (Cush.)	470 rotten
273 to pluck fruit (Ma.)	290 cock (Sw.)	473 pumpkin (Sw.)
284 to churn (Sw.)	397 mango (Eng.)	

Table 157: External borrowing in the field 'Agriculture & Vegetation' in Western

In the eastern dialects, eight items are affected by external borrowing, one item attests to uphill borrowing:

External borrowing	Internal borrowing (uphill)
265 field (Sw.)	209 garden
268 hoe (Sw.)	
284 to churn (Sw.)	
285 donkey (Ma. / Sw.)	
287 sheep (Cush.)	
399 tomato (Sw.)	
465 leaf	
468 unripe (Sw.)	

Table 158: Unstable items in the field 'Agriculture & Vegetation' in Eastern

In sum, almost 50 percent of the items reviewed in this field denote concepts that may be classified as conservative in all of Central Kenya Bantu (table 155): The relevant items refer to cultivation as well as pastoralism and seem to relate both to an ancient cattle culture as well as an ancient culture of cultivation. In short, inheritance is a major factor in this field, resulting in the three-way split of Central Kenya Bantu. External borrowing seems to have contributed to the diversity of the group in this domain, as it has resulted in the emergence of a large amount of divergent forms or it has only affected isolated locations.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	unique innovation in Kamba (ex. 217); phon. divergence (ex. 218)	Kamba most affected by unknown donors (ex. 219), less affected by Swahili and Maasai (ex. 227)	Internal borrowing (ex. 229, 230) not strong enough to bridge the divide Kamba vs. Rest
West vs. Rest	high	divergence (ex. 222)	Exclusive outside contact in Western (ex. 223)	-
East vs. Rest	high	divergence (ex. 224, 225)	internally diverse due to isolated loans in Eastern (ex. 226)	-

Table 159: Summary of the qualitative analysis in the field 'Food and Drink'

Total number of items	50	
Inconclusive cases	4	
	46	
Items affected by borrowing	Kamba	14 (30%)
Downhill: 5 Swahili: 13 Maasai: 2 English: 1	Western	11 (24%)
	Eastern	9 (20%)
Average borrowability in CKB		**24,7%**
Loanword typology (Tadmor 2009)		30,0%

Table 160: Domains statistics for the field 'Agriculture and Vegetation'

13. Social and Political Relations

From a cross-linguistic perspective, this domain shows a 31,0 percent average of loanwords, i.e. it belongs to the top five categories in terms of borrowability (Haspelmath and Tadmor 2009a). The multidimensional scaling of the dialectometrical outcome for this field, again, shows a general three-way split of Central Kenya Bantu. The Kamba dialects are grouped in the lower right of the picture, whereas the western dialects are situated in the upper part of the diagram in figure 44 below. The remaining dialects are situated in the lower left corner, broadly separated into South- and North-East.

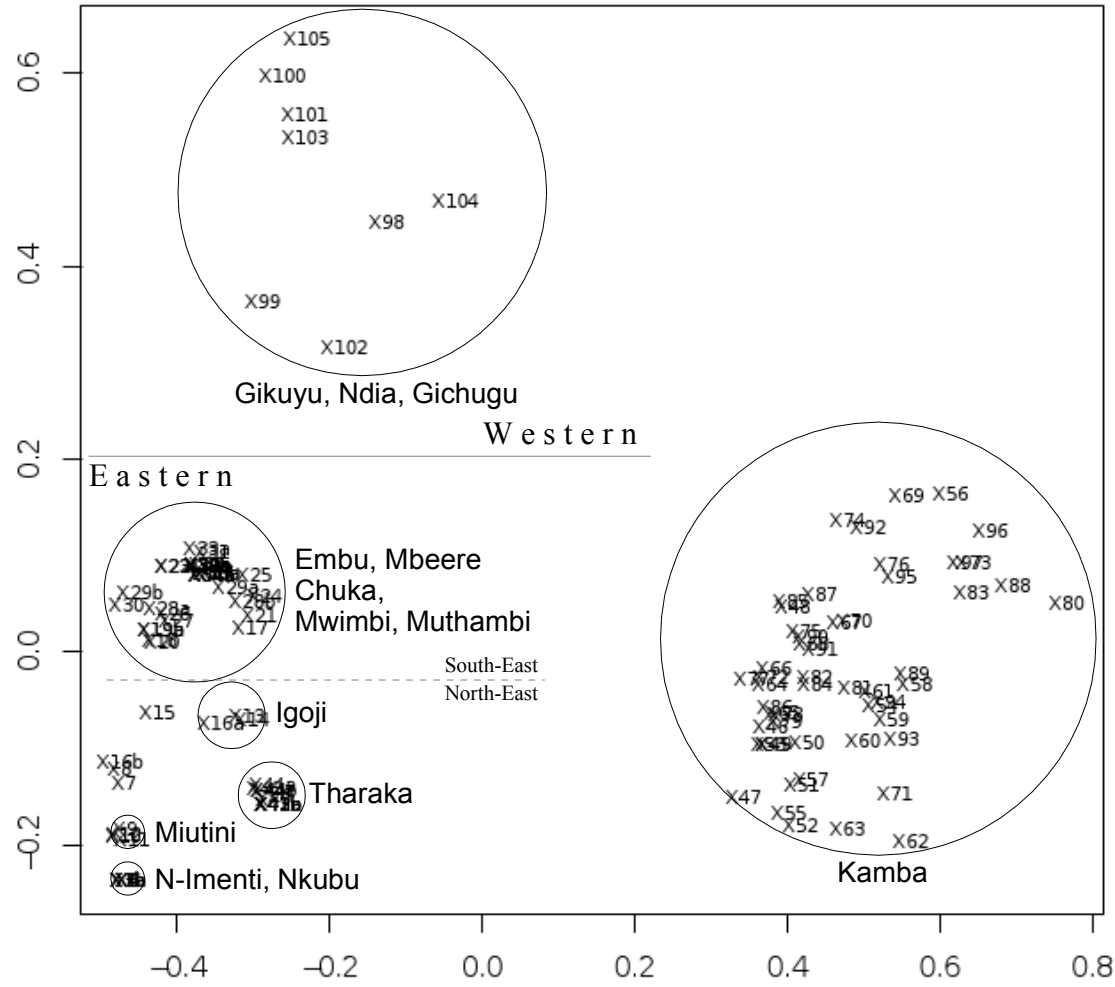


Figure 44: Multidimensional scaling of lexical distances in the field 'Social and Political Relations'

The following 30 items are reviewed in this field:

104 person (CB *-ntù C.S. 1798)	110 family, homestead	114 (my) father
105 name (inconclusive)	(inconclusive)	115 wife, woman
107 elder (Sw. *mzee*)	111 marriage	(CB *-ká C.S. 970)
108 friend (Ma. *ol-coré*)	112 to marry	116 (my) mother
109 guest, stranger	113 husband, man	117 to love (CB *-yènd- C.S. 1974)
(CB *-gènį C.S. 805)	(CB *-dúmè C.S. 697)	118 to obey

121 child (CB *-yánà C.S. 1922)	133 adult (CB *-gi̱mà C.S. 830)	(PB *-bìn 244, Eng. *song*)
123 daughter (Cush. *ʔal)	149 to permit	192 to play (CB *-cèk- C.S. 312)
126 boy (inconclusive)	152 gift	195 to get drunk (Sw. *-lewa*)
127 girl (inconclusive)	184 to command	
128 twins (CB *-pácà C.S. 1407)	185 to forbid	
131 barren woman	188 dance, song	
(CB *-kúng- C.S. 1226,	(PB *-bìn 244; *-jímb 3361,	
Cush. *tsa'ata)	Eng. *dance, song*)	
132 baby (CB *-yánà C.S. 1922)	189 to dance	

Table 161: Lexical items reviewed in the field 'Social and Political Relations'

For a relatively large number of items in this field, conceptual issues need to be considered: The two items *114 father* and *116 mother* both show a relatively high amount of diversity. Under the keyword *father*, for example, we find a variety of forms, such as *ba-ba*, *nau*, and *taːta*. Such simple forms are typical of children's speech, which may explain the high diversity of words denoting *mother* and *father* in Central Kenya Bantu. The latter concept seems to coincide with the notions of *107 elder* and *113 husband* in the western and southern foothills of Mount Kenya in the use of the form *mU.ðuːri*:

(231)	*mU.ðuːri*	107 elder	in Chuka, Embu, Mbeere, Kiambu, Gichugu
		113 husband	in Nyeri, Kiambu, Mathira
		114 father	in Ndia

The stem *-tum-* may also attest to different concepts: It seems likely that this root refers to a general concept such as 'spouse' or 'parent', as it is attested under various keywords:

(232)	107 elder	*mU.tUmɪa*	Kamba
	115 wife	*mU.tumia, mU.timia*	Western
	131 barren woman	*mU.tumia mUtɛ*	Ndia (Western)

The keywords *132 baby* and *133 adult* also show different concepts: In the case of *baby*, we find forms relating to CB *-yánà C.S. 1922 'child', e.g. *mw.ana* in Gikuyu. In Kamba, we find the cognate form *ka.ana ka.niini*, with a diminutive marker /ka-/ (class 13) and a specifying adjective, yielding the literal meaning 'small child'. The remaining dialects use unrelated forms, e.g. *ga.kɛnkɛ* in Meru.
In the case of *adult*, most varieties relate to the relevant Common Bantu item *-gi̱mà C.S. 830. Under the same keyword, the eastern dialects also use the form *-nɛnɛ* with the literal meaning 'big' (cf. CB *-nénè C.S. 1350). As these differences are conceptual rather than constituting semantic change, the two items *baby* and *adult* may be considered conservative concepts in Central Kenya Bantu.
Conceptual issues need to be, moreover, considered regarding the verbs *149 to permit, 184 to command, 188 to dance,* and *195 to get drunk*. In all of these cases, borrowing is involved. For this reason, the relevant cases are treated below, when internal and external borrowing is investigated in this field. It is to be noted, however, that any conceptual difference contributes to the lexical diversity in this domain.

There is only one item in the lexical data base of this semantic domain – *177 to love* – that may be considered non-diagnostic in dialectological terms, as it shows a single form *-ɛnda* in all of Central Kenya Bantu (related to Common Bantu *-yènd- C.S. 1974).
One item, in contrast, may be understood as a representative of the particular three-way split depicted in figure 44 above: In the case of *to marry*, the three groups Eastern, Western, and Kamba are set apart from each other, i.e. they show unrelated forms each.

(233)	112 to marry	A	*-gʊrana*	Eastern	< *-gud-
		B	*-twaa(na)*	Kamba	< *-tw-
		C	*-ɦikiɔ, -ɦik(an)ia*	Western	< *-pik-

Kamba is distinguished from the remaining varieties based on six more items. In the cases of *gift* and *dance*, Kamba seems to show unique innovations, while the rest of Central Kenya Bantu attests to archaic forms:

(234)	152 gift	*mʊ.ðɪnzɪɔ*	Kamba (innovation)
			v e r s u s
		kɪ.ɛːwa, *kɪ.ɦɛːɔ, kɪ.vɛːɔ*	Eastern, Western (cf. CB *-pɛ C.S. 1457)
	188 dance	*waði*	Kamba (innovation)
			v e r s u s
		rʊ.imbɔ, rʊ.ɪmbɔ	Eastern, Western
			(cf. PB *-jímb 3361, Bastin et al. 2002)

The keywords *to command* and *to dance* attest to external borrowing in Kamba, which has not affected the remaining varieties in these instances:

(235)	184 to command[33]	Sw. *-lazimisha*	>	*-laðimiða, -lasimiða*	Kamba only
	189 to dance	Eng. *song*	>	*-sʊnga*	Kamba only
	195 to get drunk	unknown donor	>	*-milwa*	Kamba only

In the cases of *daughter* and *barren woman*, in contrast, Kamba is the only variety of Central Kenya Bantu not affected by external borrowing:

(236)	123 daughter	*mw.ɪɪtu*	Kamba
			v e r s u s
		mʊ.aːrɪ	Eastern, Western (< Southern Cushitic *ʔal)
	131 barren woman	*ngungu*	Kamba (< CB *-kúng- C.S. 1226 'tie up')
			v e r s u s
		-ðaːta	Eastern, Western (< Southern Cush.**tsa'ata)*

33 The item *184 to command* is discussed in detail in the domain *10. Warfare and Hunting* (cf. example 202).

One additional item – *friend* – may be considered to show a conceptual difference between Kamba and Western, while some eastern dialects are set apart from all other varieties due to external borrowing from Maasai:

(237)	108 friend	*mU.ɲaŋa*	'friend'	Kamba
				v e r s u s
		mU.ra:ta	'the one who mends'	Western, Nithi, Chuka,
			(*-ra:ta* 'to mend, patch up')	Embu, Mbeere
		mU.cɔ:rɛ	'friend' (Maasai *ol-coré*)	Meru, Igoji, Tharaka

Example (237) above attests to two facts: On the one hand, it shows that Kamba uses a form unrelated to the remaining varieties. On the other hand, it shows that Maasai has influenced the northeastern dialects of Meru, Igoji, and Tharaka. Figure 44 above shows that the eastern dialects are divided into two groups in this domain – the northeastern dialects and the southeastern dialects. This division is partially due to restricted Maasai influence under the keyword *friend*. The internal division of Eastern into two subgroups in this field is also attested to by the following item in (238):

(238)	192 to play	*-tindania*	Meru: Nkubu, Imenti
			v e r s u s
		-ðaka, -ða:k(ania)	Miutini, Igoji, Nithi, Chuka, Embu, Mbeere, Western
		-ðɛkania	Tharaka (cf. 191 to laugh: *-ðɛka*)
		-ðaUka	Kamba

In general, it is difficult to identify bundled isoglosses that would separate the eastern dialects from all remaining varieties – unlike Kamba, which is set apart from its neighbors based on a number of items. The western dialects are, in turn, distinguished on the basis of three lexical entries:

(239)	107 elder	*mU.ðɛɛ* (< Sw. *mzee*)	only Western: Nyeri, Murang'a, Mathira
	113 husband	*mU.ðu:ri*	only Western: Nyeri, Kiambu, Mathira, Gichugu
	115 wife	*mU.tumia, mU.timia*	only Western: all of Gikuyu, Ndia, Gichugu

The item *elder* in (239) above shows that three western dialects have borrowed from Swahili in this instance. The remaining two items – *husband* and *wife* – seem to indicate conceptual issues. Both forms *mU.ðu:ri* 'husband' and *mU.tumia* 'wife' also occur under different keywords in Central Kenya Bantu and seem to refer to general concepts such as 'spouse' (cf. example 232 above). The limited impact of Swahili under the item *elder* as well as the conceptual issues in (239) above contribute to the internal diversity of Western depicted in figure 44 above.

There are four items attesting to internal borrowing in this field. Möhlig (1974a: 126) points out that European missionaries seem to have had some influence in regard to the items *marriage* and *to obey*. It was shown in (233), that of the three groups – Eastern, Western, Kamba – depicted in figure 44, each uses an individual form to express the concept of 'to

marry'. The relevant noun *marriage*, however, shows a different distribution of the relevant items:
Since Chuka, for example, uses the verb *-gʊrana* 'to marry', we can expect to find the relevant nominalization *ʊ.gʊrani* for the keyword *marriage*. However, this form is not attested for Chuka, but seems to have been replaced by the form *ʊ.ɦiki,* that originates in the Nyeri dialect of Gikuyu, where the first European missionaries set up their stations in the early 1900s:

(240)		**Western**		**Chuka**
	112 to marry	*-ɦik-*		*-gʊr-*
	111 marriage	*-ɦik-*	→	*-ɦik-* (expected: *-gʊr-*)

Another indicator of missionary impact is, according to Möhlig (1974a: 127), found under the keyword *to obey*, which relates to the context of 20th-century school teaching. In Gikuyu, the form *-aðɪka* is attested; in the northern Meru dialects, *-aːðɛka* is used. Both forms seem to have spread from the towns of Nyeri and Meru, respectively, around Mount Kenya, as the scattered distribution outside these centers of dispersion suggests:

(241)	118 to obey	*-aðɪka*	all of Western
		-aːðɛka	all of Meru (Nkubu, Imenti, Miutini) and Igoji
			+ scattered in Eastern: Mwimbi (18), Muthambi (22-25),
			Chuka (28, 29), Embu (31-34), Mbeere (39), Tharaka
			(42a,44)

Possibly, the forms *-aːðɛka* and *-aðɪka* were also borrowed as *-ɪtɪkɪ(r)ia* by Embu, Mbeere, and Tharaka etc., from where they spread further into Masaku-Kamba and beyond, yielding *-ɪtɪki(l)a*. The forms *-ɪtɪkɪra* and *-ɪːtɪkɪria* are also found under the keyword *149 to permit* in all varieties on the slopes of Mount Kenya, from where they spread into Kamba, resulting in the Kamba form *-ɪtɪkɪlya*.
Kamba also borrowed the form *-lɛa* (*185 to forbid*) from the languages uphill, where *-rɛgɛra* (Muthambi) and *-rɛgana* (Ndia, Gichugu), both relating to CB *-dég- 'avoid' C.S. 521, are attested.
In short, the field 'Social and Political Relations' demonstrates the influence by missionaries on the Bantu languages of Central Kenya. The major centers of dispersal of the relevant items are the towns of Nyeri and Meru.
The qualitative discussion of the items relating to social and political relations above attests to external as well as internal (montane and downhill) borrowing. (244) below summarizes all loanwords from Swahili, Maasai, Southern Cushitic, and English identified in this field:

(242) **a. Swahili**

107 elder	Sw. *mzee*	>	*mʊ.ðɛɛ*	Gikuyu: Kiambu, Murang'a
				+ Ndia
149 to permit	Sw. *ruhusa*	>	*lʊʊða*	Kamba (57, 61)

184 to command	Sw. *-amuru*	>	*-amʊlɪðya*	Kamba (69)
		>	*-amʊrɪðia*	Nyeri, Gichugu (Western)
	Sw. *lazimisha*	>	*-laðimiðya*	Kamba (58)
		>	*-lasimiʃa*	Kamba (96)
		>	*-lasimiðya*	Kamba (56)
188 dance, song	Sw. *ngoma*	>	*ngɔma*	Kamba (48, 61)
195 to get drunk	Sw. *-lewa*	>	*-rɪːwa*	Igoji (15), Mwimbi (19), Muthambi, Chuka, Embu, Mbeere, Nyeri (99)
		>	*-rɪːka*	Mwimbi
		>	*-rɪ(ɦɪ)ɔ*	Western
	Sw. *-shindwa*	>	*-sindwa*	Kamba (93)

b. Maasai (Tucker & Mpaayei 1955)

108 friend	Ma. *ol-coré*	>	*mʊ.cɔːrɛ*	Meru, Igoji, Nithi, Chuka, Tharaka

c. Southern Cushitic (Kießling & Mous 2003)

123 daughter	Cu. *ʔal	>	*mʊ.aːrɪ*	Eastern
		>	*mw.arɪ*	Western
131 barren woman	Cu. *tsa'ata	>	*-ðaːta*	Eastern, Western

d. English

188 dance, song	Eng. *dance*	>	*ndaci*	Nyeri (98, 99)
		>	*ndasi*	Kamba (56, 68)
		>	*ndanzi*	Kamba (69, 72)
	Eng. *song*	>	*ma.sʊngɔ*	Kamba (60)
189 to dance	Eng. *song*	>	*-sʊnga*	Kamba (widespread)

The list in (242) above shows that Swahili has been the most influential donor in this field. Regarding the number of affected items, Kamba has been influenced most severely, followed by the western dialects. However, except for the item *to get drunk*, Swahili influence has been relatively limited in distributional terms.

The same holds for Maasai influence – the item *friend* has only affected the northernmost varieties of Eastern. Kamba has, in turn, not been affected by Southern Cushitic influence,

while the eastern varieties show no signs of language contact with English in this field. This seems to relate to the specific history of settling in Central Kenya: The eastern and western dialects are situated in an area that had been inhabited by presumably Cushitic speaking groups prior to the influx of Bantu pioneers. The eastern foothills, in turn, may be described as the least accessible part of Central Kenya, i.e. English influence seems to be relatively low in these dialects due to the fact that the British first reached the plains of Kamba and the western highlands; successively, they entered the eastern foothills of Mount Kenya.
The items *105 name, 110 family, 126 boy,* and *127 girl* remain inconclusive – the relatively high amount of diversity in these cases cannot be explained. A total of ten items may be considered stable in all of Central Kenya, i.e. there are no indications of language contact in any dialect:

104 person (CB *-ntù C.S. 1798	114 father	132 baby (CB *-yánà C.S. 1922)
109 guest (CB *-gènį C.S. 805)	115 wife	133 adult (CB *-gį̀mà C.S. 830)
112 to marry (*-gud-, *-tw-, *-pik-)	116 mother	
113 husband	117 to love (CB *-yènd- C.S. 1974)	

Table 162: Stable concepts in the field 'Social and political Relations'

The following items in table 163 indicate external and internal (downhill) borrowing in Kamba:

External borrowing	**Internal borrowing (downhill)**
149 to permit (Sw.)	118 to obey / 149 to permit
184 to command (Sw.)	185 to forbid
188 dance (Eng. / Sw.)	
189 to dance (Eng.)	
195 to get drunk (Sw.)	

Table 163: External and internal borrowing in Kamba in the field 'Social and Political Relations'

The following items in table 164 indicate external borrowing in the western dialects:

107 elder (Sw.)	131 barren woman (Cush.)	188 dance, song (Eng.)
123 daughter (Cush.)	184 to command (Sw.)	195 to get drunk (Sw.)

Table 164: External borrowing in the field 'Social and Political Relations' in Western

The following table 165 presents the items affected by external and internal (montane) borrowing in the eastern dialects in this field:

External borrowing	**Internal borrowing (montane)**
108 friend (Ma.)	118 to obey / 149 to permit
123 daughter (Cush.)	
131 barren woman (Cush.)	
184 to command (Sw.)	
188 dance, song (Eng.)	
195 to get drunk (Sw.)	

Table 165: Borrowing in the field 'Social and Political Relations' in Eastern

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	unique innovations in Kamba (ex. 234)	Kamba most affected by unknown donors (ex. 235), Swahili and English (ex. 242); Kamba unaffected by Cushitic (ex. 236, 242)	Downhill borrowing (ex. 241) not strong enough to bridge the divide Kamba vs. Rest
West vs. Rest	high	(no bundled isoglosses)	Exclusive Swahili contact in West (ex. 239)	Conceptual issues dividing West vs. Rest (ex. 239), internal borrowing (ex. 240) not strong enough to bridge the divide West vs. Rest
North-East vs. South-East	high	-	exclusive Maasai contact in North-East (ex. 237)	Hardly any bundled isoglosses; internal borrowing not strong enough for homogenizing effect (ex. 241)

Table 166: Summary of the qualitative analysis in the field 'Social and Political Relations'

Total number of items	30	
Inconclusive cases	4	
	26	
Items affected by borrowing	Kamba	7 (27%)
Downhill: 2 Montane: 1 Swahili: 5 Maasai: 1 English: 3 Cushitic: 2	Western	6 (23%)
	Eastern	7 (27%)
Average borrowability in CKB		**25,7%**
Loanword typology (Tadmor 2009)		31,0%

Table 167: Domain statistics for the field 'Social and Political Relations'

14. Law

The field 'Law' is, according to Haspelmath and Tadmor (2009a), one of the semantic fields with the highest tendency to borrowing in the world's languages, i.e. it reaches an average of 34,3 percent of loanwords. In this study, the following 20 items are reviewed:

118 to obey (CB *-yígụ- C.S. 2043)	164 to hit, strike (PB *-pʊ̀ʊd- 2628)	175 lawsuit
160 quarrel /	166 to fight (PB *-pʊ̀ʊd- 2628,	(Sw. *mashtaka*, Eng. *court*)
161 to quarrel	CB *-dù- C.S. 675)	176 law (Sw. *sheria*)
(CB *-tét- C.S. 1720)	169 to steal (PB *-jíb- 3387)	177 judge (Sw. *sheria,* Eng. *judge*)
163 to beat s.o. (PB *-pʊ̀ʊd- 2628)	174 lie	176 to accuse (Sw. *-shtaki*)

181 to deny (CB *-dég- C.S. 521)	(Sw. *-amuru*, *-lazimisha*)
182 truth	185 to forbid (CB *-dég- C.S. 521)
183 oath (Ma. *ol-mumái*)	187 to punish (Sw. *sheria*)
184 to command	301 to kill (CB *-búd- C.S. 184)

Table 168: Lexical items reviewed in the field 'Law'

The multidimensional scaling of the statistical results for this field, presented in figure 45 below, renders a rather unusual picture. In contrast to the overall outcome (see figure 29 in section 3.2.1), no split exists between Kamba and the remaining varieties; in fact, Kamba, Mbeere, and most of Gikuyu seem almost identical, when it comes to judicial vocabulary. The dialects on the eastern slopes of Mount Kenya are somewhat distant to the just mentioned varieties. Chuka seems to be divided into two groups: The first one, the locations 29a and 29b, is situated near its next door neighbor Muthambi. The rest of Chuka seems to concur with Mwimbi as well as with Embu and is, besides, especially close to Nyeri and Murang'a. In short, the field 'Law' shows affiliations between such dialects that are usually rather distinct from each other, e.g. Kamba and Mbeere or Mwimbi and Gichugu.

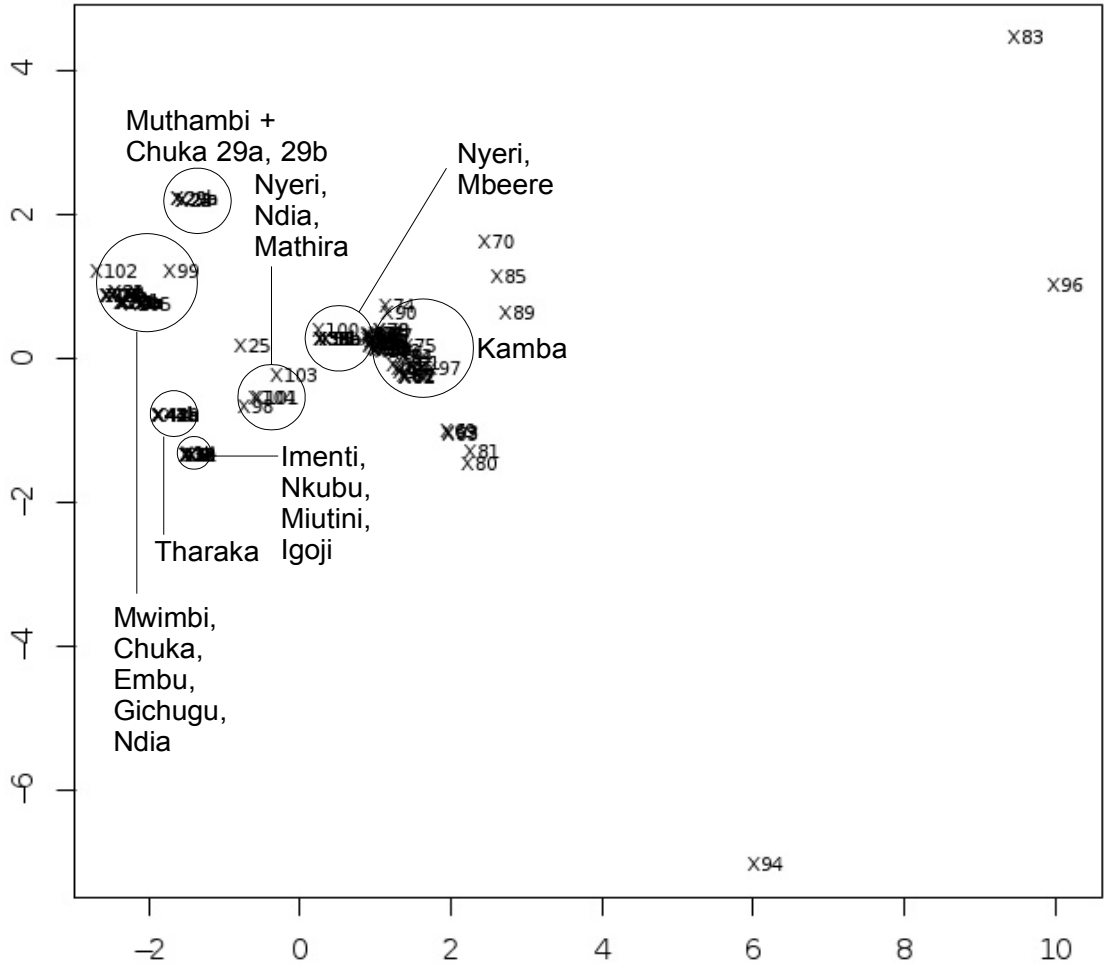


Figure 45: Multidimensional scaling of lexical distances in the field 'Law'

In regard to a number of items in this field, conceptual issues need to be considered: I discussed above in the context of the semantic field *10. Warfare and Hunting* that the notion of beating somebody is expressed by various forms that seem to denote slightly different

actions, e.g. striking someone with one's bare hands versus using an object. This conceptual variation concerns the items *163 to beat, 164 to hit*, *166 to fight* in this field (cf. example 194).
The Gikuyu form *-ɦʊːra* (cf. PB *-pʊ̀ʊd- 2628), for example, occurs under all of three of these keywords. The conceptual differences seem to have contributed to the unusal picture presented in figure 45 above. This diagram shows that Mbeere, for example, is particularly close to Kamba in this field; whereas the two varieties are distinct in the overall outcome (see figure 29 in section 3.2.1) as well as every other semantic domain reviewed in this study. Under the keyword *to hit*, both Mbeere and Kamba show an identical form, while the remaining varieties diverge:

(243)	164 to hit	*-ringa*	all of CKB except for
		-kuna	all of Mbeere and Kamba

The form *-kuna* listed in (243) for Mbeere and Kamba seems to denote the action of hitting somebody or something with a blunt object (it also occurs under the keyword *367 to forge*). In this particular instance, Mbeere and Kamba concur in the use of the same concept. The relatively low distance between Mbeere and Kamba is partially due to the use of the same concepts in this instance – borrowing may be considered unlikely in this case on formal and distributional grounds.
We may also rule out borrowing in the cases of *to steal* and *to kill*. In both instances, all varieties use related forms, that may be considered archaic:

(244)	169 to steal	PB *-jíb- 3387	>	*-iya*	Western
		(Bastin et al. 2002)	>	*-ya*	Kamba
			>	*-iːya*	all of Eastern except for
			>	*-ɪːya*	Embu, Mbeere
	301 to kill	CB *-búd- C.S. 184	>	*-(ʊ)raga*	Eastern, Western
			>	*-ʊaa, -waa*	Kamba

In the cases of *lie* and *truth*, borrowing seems unlikely as well, as all the relevant forms under these keywords are regular in shape and widespread in distribution. However, no connection to one meta-language can be established in these cases. Nevertheless, we may assume that *lie* and *truth* are conservative concepts in Central Kenya Bantu:

(245)	174 lie	*ʊ.βʊngʊ*	Kamba
		kʊ.ɦɛːnania	Western
		ma.vɛːni	Embu, Mbeere
		ʊ.rɔngɔ	all of remaining varieties
	182 truth	*ʊ.maa, maa*	Eastern, Western
		ʊ.ᵍwɔ	Kamba

The majority of items investigated in this field have been affected by language contact, as the following paragraphs show: The unusual picture presented in figure 45 above seems to be mainly due to diffusion. Rather than finding the general three-way split that characterizes Central Kenya Bantu in most of the semantic classes reviewed in this study, we find a close clustering of varieties that are usually rather distinct from each other, e.g. Mwimbi, Chuka, Embu, Ndia, and Gichugu. In other words, borrowing seems to have resulted in the homogenization of wide range of dialects in this field.

External borrowing constitutes a major factor in regard to judicial vocabulary. The introduction of legal terminology during the colonial period seems to have resulted in the homogenization of the entire group. Prior to colonialism, disputes were settled on the family- or ridge-level, i.e. they were in the hands of the heads of a homestead or local councils. However, when the British established an institutionalized legal system, a number of terms from Swahili and English were introduced.

The keyword *lawsuit* attests to this historical fact: The eastern dialects still dispose of a genuine form *ɪ.gamba*, which also occurs with the meanings *134 voice* and *138 language.* The term probably refers to the concept of discussion, i.e. the traditional way of settling disputes. We do, however, also find the widespread use of Swahili and English loanwords:

(246)	175 lawsuit	*ɪ.gamba*		Eastern: Meru, Igoji, Nithi, Chuka, Tharaka
		Sw. *mashtaka*	> *ma.ðiːtanga*	Embu
			> *ma.ðiːtangɔ*	scattered in all of Eastern
			> *(i.)ðitaːngɔ* etc.	Western
			> *ʊ.sitaka* etc.	Kamba
			> *kʊ.sikata* etc.	Kamba
		Sw. *sheria*	> *ciːra*	Mbeere
		Eng. *Court*	> *ɪ.kwani, ma.kwani*	Kamba

The fact that the Swahili items in (248) are restricted in distribution on the eastern dialects, i.e. the genuine form seems to have survived in Meru etc., represents the colonial history of Central Kenya – the British first occupied Kamba territory and the western highlands, before embarking on the exploitation of the eastern foothills of Mount Kenya. The keyword *judge* confirms this historical fact: Again, we find genuine forms relating to traditional law next to recently introduced loans from Swahili and English:

(247)	177 judge	'the one who discusses'	*mʊ.gambi(ðania)*	Eastern: Meru, Igoji, Nithi, Chuka, Tharaka
		'head'	*mʊ.tui*	Nyeri (99)
			mʊ.twi etc.	Kamba (restricted), Gikuyu (restricted)

	Sw. *sheria*	>	*mU.ci:riðania*	Chuka, Embu, Mbeere (39), Nyeri
		>	*mU.si:riðania*	Ndia
		>	*mU.sili*	Kamba (widespread)
	Eng. *judge*	>	*njanji*	scattered in Eastern: Igoji (11, 15), Mwimbi (20), Muthambi, Embu, Mbeere, Tharaka
		>	*ndʒangi, tʃatʃi*	Kamba (87, 97)

Example (247) above shows that the genuine form *mU.gambi(ðania)* 'the one who discusses' has survived in some eastern dialects. Another concept *mU.twi* etc., presumably related to *002 head*, occurs in limited distribution in Kamba and Gikuyu. The Swahili word *sheria* seems to have replaced such traditional concepts; the same holds for the English word *judge*. From a distributional perspective, the eastern dialects have been less affected by the replacement of traditional terminology in regard to the keyword *judge*, due to the fact that the eastern foothills were colonized after the western highlands and the plains of Kambaland.
In sum, external borrowing has affected the following items in the field 'Law':

(248) **a. Swahili**

175 lawsuit	Sw. *mashtaka*	>	6 forms in Eastern and Western
		>	12 forms in Kamba incl. metathesis
	Sw. *sheria*	>	1 form in Mbeere
176 judge	Sw. *sheria*	>	1 form in Chuka, Embu, Mbeere, Western
		>	3 forms in Kamba
179 to accuse	Sw. *-shtaki*	>	4 forms in all of CKB
	Sw. *sheria*	>	3 forms in Kamba and Ndia
184 to command	Sw. *-lazimisha*	>	3 forms in Kamba
	Sw. *-amuru*	>	2 forms in Kamba, Murang'a, Gichugu
187 to punish	Sw. *sheria*	>	9 forms in Kamba

b. English

175 lawsuit	Eng. *court*	>	3 forms in Kamba
176 judge	Eng. *judge*	>	3 forms in all of CKB

c. Maasai (Tucker & Mpaayei 1955)

183 oath	Ma. *ol-mumáì*	>	2 forms in all of CKB

The Swahili word *sheria* (Arabic in origin) is used under a variety of keywords. This may indicate that by the time of borrowing this word, the speakers of Central Kenya Bantu recognized a difference between traditional law, which is denoted by genuine forms such as *wa:ðɔ / waðɔ* (Eastern, Western) and *mw.ɪaɔ* (Kamba), and the legal system established by the British. The Maasai loanwords *mu:ma* and *muma*, appearing in all of Central Kenya Bantu under the keyword *oath*, seem to relate to a time before colonialism. According to Möhlig (2014: 232), swearing an oath had an inter-ethnic importance to end feuds among the different communities in precolonial Central Kenya (see also section 1.2.2).

The above discussion shows that external borrowing, especially from colonial Swahili, has resulted in the homogenization of Central Kenya Bantu in regard to legal terminology, which relates to the fact that traditional law was replaced by colonial rule in the early 20th century.

The particular proximity between Mbeere, Kamba and most of Gikuyu in this field is due to language contact between these varieties. The borrowing of word forms denoting the concepts *118 to obey* and *149 to permit* from Gikuyu into Mbeere and Kamba was discussed in the previous section on *13. Social and Political Relations* (see example 241).

The verb *-rɛga* (*181 to deny*, *185 to forbid*), again, originates in Gikuyu, from where it spread into Kamba and was recieved as *-lɛa*. In the case of *160 quarrel*, moreover, borrowing from Embu into Kamba is attested by *ngarari*, which spread into Kamba as *ngalali*. The same holds for the form *-kararania* (*161 to quarrel)*, attested in Embu and Chuka (*-karania* in Nyeri), that was borrowed by Kamba as *-kalalaia* and *-kalalia* (see example 204 in the field *10. Warfare and Hunting* above).

The following items in table 169 may be considered stable concepts in all of Central Kenya Bantu:

163 to beat s.o. /	169 to steal (PB *-jíb- 3387)	182 truth
164 to hit, strike (PB *-pùʊd- 2628)	174 lie	301 to kill (CB *-búd- C.S. 184)
166 to fight (CB *-dù- C.S. 675)	176 law	

Table 169: Stable concepts in the field 'Law'

The following items in this semantic class are affected by borrowing in Central Kenya Bantu:

External borowing	**Internal external**
175 lawsuit (Sw., Eng.)	118 to obey (montane, downhill)
177 judge (Sw, Eng.)	160 quarrel / 161 to quarrel (downhill)
179 to accuse (Sw.)	189 to deny / 185 to forbid (downhill)
183 oath (Ma.)	
184 to command (Sw.)	
187 to punish (Sw.)	

Table 170: Items affected by borrowing in the field 'Law'

It is important to note that all varieties have been affected by language contact to approximately the same degree in this field. In sum, the qualitative analysis of the semantic field 'Law' enables us to deduct the following conclusions:

- The conceptual discrepancies between the different forms relating to striking somebody complicates the picture in the field 'Law'. However, the relevant items (e.g. *163 to beat*, *166 to hit*) seem to refer to conservative concepts, as they may be connected to Guthrie (1967-71) or Bastin et al. (2002). In contrast, the term *176 law*, for example, cannot be related to a common meta-language; nevertheless, in all dialects, it seems to refer to an archaic concept, i.e. traditional law.
- The establishment of colonial rule and the introduction of a institutionalized legal system had a major impact on this semantic domain. There are five items borrowed from Swahili, two cases of English loans can be identified. The fact that a Maasai loan occurs under the keyword *183 oath* seems to represent the social and political interdependence between the Bantu speakers of Central Kenya and their Maasai neighbors in pre-colonial times.
- Colonial rule also seems to have affected internal borrowing in Central Kenya Bantu. A number of items relating to law and order seem to have diffused throughout the foothills of Mount Kenya and into the plains of Kamba territory during colonial times.

In general, lexical diffusion has been severe in this field – in regard to the number of affected items as well as in distributional terms. The following table shows how specific items in this domain may connect dialects that are usually rather distinct from each other:

Item	Source Word	Affected Varieties	Example
175 lawsuit	Sw. *mashtaka* >	Eastern-Western-Kamba	246
177 judge	Sw. *sheria* >	Ndia-Embu-Mbeere-Chuka-Kamba	247
	Eng. *judge* >	Embu-Mbeere-Tharaka-Mwimbi-Muthambi-Igoji-Kamba	
252 to command	Sw. *-amuru* >	Kamba-Gikuyu	248
160 quarrel	West. *-rɛga* >	Western-Kamba	204 *(see 10. 'Warfare')*

Table 171: Examples of widespread borrowing in the field 'Law'

Total number of items	20	
Inconclusive cases	0	
	20	
Items affected by borrowing	CKB	11 (55%)
Downhill: 3 Montane: 1 Swahili: 5 Maasai: 1 English: 2		
Average borrowability in CKB		**55,0%**
Loanword typology (Tadmor 2009)		34,3%

Table 172: Domain Statistics for the field 'Law'

15. The House

In the loanword typology (Haspelmath and Tadmor 2009a), the field 'The House' shows a total of 37,2 percent of loans in the world's languages and ranges among the top three semantic class to be most affected by borrowing. In this study, the following 41 items are reviewed in this field:

196 to build (CB *-yák- C.S. 1903)	212 fire	251 axe
197 house (CB *-yùmbá C.S. 2168)	213 to burn up (inconclusive)	(CB *-còká C.S. 372, Sw. *shoka*)
198 wall (Sw. *ukuta*)	214 charcoal (CB *-kádà CS 980)	252 knife
199 roof	215 smoke	253 sharp
200 window (Sw. *dirisha*)	216 ahses (inconclusive)	254 blunt (CB *-tụ́ụ́p- C.S. 1880)
201 door (CB *-dàngò C.S. 552)	217 to extinguish (inconclusive)	255 broom (Sw. *ufagio*)
202 to open (Sw. *-fungua*)	218 firewood (CB *-kúị C.S. 1181)	256 to sweep (Sw. *-fagia*)
203 to shut	220 cooking stones	257 lamp (Sw. *taa*)
205 room (Eng. *room*, Sw. *chumba*)	(CB *-pígà C.S. 1548)	258 mirror
206 enclosure for animals	243 chair (Sw. *kiti*)	259 rope (CB *-dígị̀ C.S. 613)
(inconclusive)	244 mat (CB *-kéká p.s. 290)	260 knot (CB *-kụ́ndò C.S. 1272)
207 fence (CB *-bíg- C.S. 118)	246 basket (Sw. *kikapu*)	261 to hang up (inconclusive)
210 fireplace	247 bottle (Sw. *chupa*)	262 to split firewood
(CB *-gíkò C.S. 828, Sw. *jiko*)	249 hammer	(CB *-yàt- C.S. 1946)
211 to kindle fire	(CB: *-dòndò C.S. 706;	370 to paint (Sw. *-paka rangi*)
(CB *-pụ̀ụ̀p- C.S. 1632,	*-dúndò C.S. 706)	584 clean (CB *-céd- p.s. 85)
CB *-bàk- C.S. 34)	250 matchet (Sw. *panga*)	

Table 173: Lexical items reviewed in the field 'The House'

The statistical outcome represented in figure 46 below resembles some of the pictures provided in the above sections on different semantic domains, i.e. one finds the general three-way division. Again, Kamba as well as the western dialects of Gikuyu, Ndia, and Gichugu are rather distant from each other and all remaining varieties. Embu and Mbeere are, once again, situated mid-way between their eastern and western neighbors. The dialects on the eastern foothills of Mount Kenya are represented in the lower left corner of the picture. The south-eastern Kirinyaga varieties Chuka as well as Mwimbi and Muthambi are grouped together with their eastern neighbor Tharaka, while the northern dialects are clustered in the lower left corner:

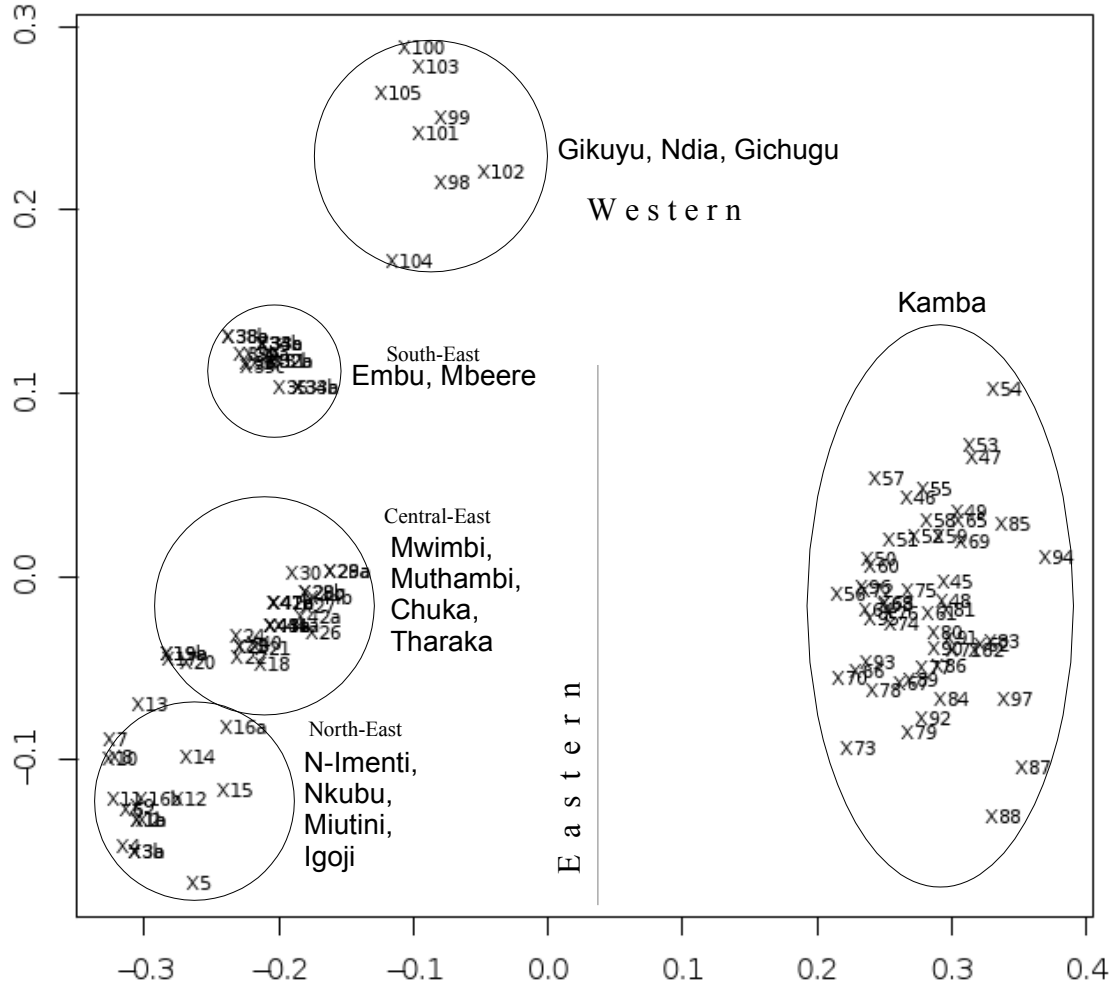


Figure 46: Multidimensional scaling of lexical distances in the field 'The House'

Out of a total of 41, three items show forms that are considered identical throughout all of Central Kenya Bantu and considered non-diagnostic in dialectological terms:

(249)	218 firewood	*ngU, nkU*	< CB *-kúį C.S. 1181
	244 mat	*mU.gɛka, mU.kɛka*	< CB *-kéká p.s. 290
	584 clean	*-ðɛ(r)u*	< CB *-céd- p.s. 85

In a number of instances, there are conceptual issues to be considered. In the case of *196 to build*, almost all dialects relate to the relevant Common Bantu item *-yák- C.S. 1903. Chuka,

Embu, and Mbeere, however, diverge in regard to this keyword – they show the form *-tuma*, which, according to Möhlig (1974a: 138), denotes a specific building technique, namely building a shelter by setting up a timbered framework (cf. *263 to sew*, CB *-tʊ́m- C.S. 1865).
The term *199 roof* is expressed by the form *ɪ.gʊrʊgʊrʊ* in most eastern dialects, which relates to the stem *-gʊrʊ-* and the concept of 'up, above' (cf. Benson 1964: 130). In addition, we find the form *ɪ.tara* on the eastern slopes originally denoting a crawl space below the roof trestle (cf. Möhlig 1974a: 138). Moreover, the Swahili loan *ma.bati* is attested in Kiambu-Gikuyu under this meaning, describing a roof made of corrugated metal.
The item *201 door* relates to the relevant Common Bantu item *-dàngò C.S. 552 in all of Central Kenya Bantu. Kamba uses an additional form *mʊ.ɔmɔ*, a metaphorical description of a door with the original meaning 'mouth' (cf. CB *-dòmò C.S. 652). This conceptual difference sets Kamba apart from the remaining varieties.
Conceptual issues, moreover, appear under the keywords *207 fence* and *259 rope*. The former item is expressed by the forms *rʊ.iːrigɔ* (Chuka, Embu) and *w.iiɔ* (Kamba), possibly both related to Common Bantu *-bíg- C.S. 118 'to fence in'. In Mbeere, Tharaka, and the western dialects, the form *rʊ.giri* is attested, which may relate to the verb *-giria* (*185 to forbid*). In addition, Tharaka uses an English loan *rʊ.ɪnci* under the meaning *fence* (Möhlig 1974a: 140).
The item *rope* yields forms involving the stem *-rig-* in most eastern dialects, relating to Common Bantu *-dígì C.S. 613 'string'. A few eastern dialects as well as Western and Kamba show the forms *mʊ.kanda* and *ɪ.kanda*, respectively, possibly relating to Swahili *kanda* 'belt'.
Finally, the verb *211 to kindle fire* shows forms relating to Common Bantu *-bàk- C.S. 34 'to kindle' as well as *-pʊ̀ʊ̀p- C.S. 1632 'to blow'. In sum, all of the conceptual differences described here contribute to the internal diversity within Central Kenya Bantu.
Figure 46 above shows a relatively large distance between Kamba and all other varieties of Central Kenya Bantu. Only one item – *smoke* – shows a form in Kamba that is unattested outside Kamba and seems genuine based on its widespread use:

(250) 215 smoke	*syʊkɪ*	Kamba	
		v e r s u s	
	tɔːgi, tɔːgɔ, ntɔːgɔ, ndɔːgɔ	all remaining varieties	

The relatively large distance between Kamba and the remaining varieties, however, seems to be mainy due to external borrowing into Kamba that has not affected the neighboring languages:

(251) External loanwords in Kamba

198 wall	Sw. *ukuta*	>	*ʊ.kʊta*	Kamba only (restricted)
199 roof	unknown donor	>	*kɪ.ala, ky.ala*	Kamba only (restricted)
202 to open	Sw. *-fungua*	>	*-bungʊa*	Kamba only (restricted)
203 to shut	Sw. *-funga*	>	*-bunga*	Kamba only (restricted)
204 to enter	unknown donor	>	*-lika*	Kamba only (widespread)
205 room	Sw. *chumba*	>	*kɪ.sʊmba*	Kamba only (restricted)
210 fireplace	Sw. *jiko*	>	*yɪ.ikɔ*	Kamba only (restricted)
243 chair	unknown donor	>	*kɪ.bɪlːa*	Kamba only (restricted)
250 matchet	unknown donor	>	*kɪ.lɔbɔɔ*	Kamba only (restricted)

254 blunt	unknown donor	>	*ɪ.lunzu*	Kamba only (widespread)
255 broom	Sw. *ufagio*	>	*ʊ.byaɪɔ*	Kamba only (widespread)
256 to sweep	Sw. *-fagia*	>	*-βyaɪa*	Kamba only (restricted)
262 to split	unknown donor	>	*-alia, -alya*	Kamba only (restricted)

Most of the items listed in (251) are restricted in distribution. Only the keywords *to enter, blunt*, and *broom* show widespread use of loanwords in Kamba. The fact that Kamba is the only variety to be affected by external borrowing in the cases above sets it apart from the remaining varieties. In turn, their restricted in distribution accounts for the relatively high diversity of Kamba depicted in figure 46 above.
The eastern dialects are also set apart from all other varieties in regard to a number of items. Figure 46 above shows that in the field 'The House', Eastern is divided into three groups: South-East (Embu, Mbeere), Central-East (Mwimbi, Muthambi, Chuka, Tharaka) and North-East (Nkubu, Imenti, Miutini, Igoji). All of Eastern is distinguished from the remaining varieties due to divergence in the cases of *house* and *charcoal*:

(252) 197 house (phonological divergence)

CB *-yùmbá C.S. 2168	>	*ɲɔmba*	Eastern
		v e r s u s	
	>	*ɲʊmba*	Western, Kamba

214 charcoal (morphological divergence)

CB *-kádà CS 980	>	*ɪ.kara*	Eastern
		v e r s u s	
	>	*ma.ka(r)a*	Western, Kamba

The two items in (252) above attest to the general separation of Eastern from all remaining varieties. The internal diversity of Eastern – i.e. a three-way split into North, Central, and South – is, in turn, attested to by another set of items:
Embu and Mbeere are set apart from all other dialects in regard to the item *fire*. The relevant forms may not be connected to a meta-corpus, such as Guthrie (1967-71) or Bastin et al. (2002); however, due to the widespread distribution of the forms in (253) below, we may assume divergence to be the cause of the split between Embu-Mbeere and all remaining varieties in the case of *fire*:

(253) 212 fire

mʊ.a:ki	Embu, Mbeere (South-East)
v e r s u s	
mʊ.anki	North-East and Central-East
mw.aki	Kamba, Western

The northernmost varieties of the eastern slopes are, in turn, set apart in regard to the item *broom*. It is difficult to judge whether Meru shows a unique innovation in this case, as we cannot rule out that the form *kɪ.ɛ:gɛri* is an external loanword. The scattered distribution of

this item outside Meru may suggest diffusion. Möhlig (1974a: 147) remarks that the form has, possibly, spread southwards from Meru:

(254)	255 broom	*kɪ.ɛ:gɛri*	Meru: Imenti, Nkubu + Miutini (9, 11), Igoji (15 + 16)
			v e r s u s
		kɪ.ɦa:ti	Mwimbi, Muthambi, Chuka, Miutini, Igoji
		kɪ.va:ti	Embu, Mbeere
		kɪ.ba:ti	Ndia
		kɪ.ɦa:tɔ	Western
		-gɪ.cia:ti	Tharaka
		ᵾ.tuti	Kamba (+ Swahili loan)

External borrowing, additionally, distinguishes Eastern from the rest of Central Kenya Bantu under the keyword *axe*. On the one hand, the eastern dialects show a scattered distribution of the Swahili loan *ɪ.cɔka*, that is unattested otherwise. On the other hand, Maasai has influenced the eastern varieties under this meaning. The northernmost Meru dialects Imenti and Nkubu differ slightly from their neighbors in borrowing the Maasai word *en-tólú* (Tucker & Mpaayei 1955: 283):

(255)	251 axe	Sw. *shoka*	>	*ɪ.cɔka, cɔka*	Meru: Imenti (1-3), Miutini (9); Mwimbi (20), Embu (31, 32), Mbeere (36, 39b)
				(≠ CB *-còká C.S. 372; expected: *ɪ.ðɔka*)	
		Ma. *en-tólú*	>	*ntᵾ:ru*	Meru: Imenti, Nkubu
					v e r s u s
			>	*ga.tᵾ:ru, ɪ.tᵾ:ru*	Miutini, Igoji, Mwimbi

In sum, the particular outcome of the statistical analysis regarding domestic terms in the eastern varieties presented in figure 46 above is due to two factors: On the one hand, Eastern is set apart from the other two groups Western and Kamba due to divergence (example 252). The separation of Embu-Mbeere from the other eastern dialects may also be attributed to divergence (example 253). The Meru dialects, i.e. the varieties labeled North-East in figure 46, seem to have been distanced from their neighbors due to borrowing from Swahili and Maasai, respectively (example 255).

In the field 'The House', Swahili is the most prominent external donor language followed by English and Maasai:

(256) **a. Swahili**

198 wall	Sw. *ukuta*	>	*ʊ.kʊta*	Kamba
199 roof	Sw. *mabati*	>	*ma.bati*	Kiambu-Gikuyu
200 window	Sw. *dirisha*	>	*ndɪrica*	Meru, Igoji, Nithi
		>	*ndigica*	Imenti, Igoji (13)
		>	*ndiriːca*	Chuka, Embu, Mbeere, Tharaka, Western
		>	*ndɪlɪʃa*	Kamba
202 to open	Sw. *-fungua*	>	*-bungʊa*	Kamba
203 to shut	Sw. *-funga*	>	*-bunga*	Kamba
205 room	Sw. *chumba*	>	*kɪ.sʊmba*	Kamba
210 fireplace	Sw. *jiko*	>	*yɪ.ikɔ*	Kamba
243 chair	Sw. *kiti*	>	*gɪ.tɪ*	Eastern, Western
246 basket	Sw. *kikapu*	>	*gɪ.kabʊ*	Meru, Igoji, Nithi, Chuka
		>	*kɪ.kabʊ*	Kamba
		>	*gɪ.kambʊ*	Embu, Mbeere
		>	*(g)ɪ.kaːbʊ*	Mbeere, Tharaka
		>	*gɪ.kabu*	Western
247 bottle	Sw. *chupa*	>	*mʊ.cuːba*	Meru, Igoji, Nithi, Chuka
		>	*mʊ.cʊːba*	Tharaka
		>	*sʊba* etc.	Kamba
		>	*cuba, suba*	Western
250 matchet	Sw. *panga*	>	*(k)ɪ.banga*	Eastern, Kamba
		>	*banga*	Western
251 axe	Sw. *shoka*	>	*ɪ.cɔka, cɔka*	Eastern (scattered)
255 broom	Sw. *ufagio*	>	*ʊ.byaɪɔ*	Kamba
256 to sweep	Sw. *-fagia*	>	*-byaɪa*	Kamba
257 lamp	Sw. *taa*	>	*taːwa*	Meru, Igoji, Ndia, Gichugu
		>	*taa*	Nithi, Chuka, Embu, Mbeere, Tharaka, Kamba
		>	*tawa*	Western
370 to paint	Sw. *-paka rangi*	>	*-vaka rangi*	Embu, Mbeere

		>	*-ɦaka rangi*	Gikuyu, Chuka, Meru, Tharaka
		>	*-baka rangi*	Kamba, Ndia, Gichugu
b. English				
205 room	Eng. *room*	>	*ruːmu*	Eastern
		>	*lumu*	Kamba
207 fence	Eng. *fence*	>	*rUːɪnci*	Tharaka
c. Maasai (Tucker & Mpaayei 1955)				
251 axe	Ma. *en-tólú*	>	*ntUːru*	Meru: Imenti, Nkubu
		>	*ga.tUːru*	Miutini, Igoji, Mwimbi

The list in (256) shows that a total of 16 items have been affected by Swahili contact in this field. Not all of these items, however, attest to widespread use of Swahili loanwords. In fact, only the item *to paint* has resulted in homogenization of the entire group, i.e. all dialects use forms treated as identical under this keyword.
The cases of *window*, *bottle*, *matchet*, and *lamp* in (256) attest to the widespread use of Swahili items as well. In these instances, however, Central Kenya Bantu shows a relatively high amount of diversity, i.e. irregularly corresponding forms (suggesting parallel borrowing). The influence by Maasai and English is relatively restricted in regard to the number of affected items as well as in distributional terms. In sum, Swahili has influenced Kamba most severely, the remaining dialects have been less affected. Maasai, in contrast, has only left traces in the eastern varieties, while English, surprisingly, has not impacted Western in this field.
The following twelve lexical items in table 174 may be considered stable in all of Central Kenya Bantu, i.e. they show no indication of borrowing:

196 to build (CB *-yák- C.S. 1903)	212 fire (*-ak-)	253 sharp (*-ug-)
197 house (CB *-yùmbá C.S. 2168)	214 charcoal (CB *-kádà CS 980)	260 knot (CB *-kʉ́ndò C.S. 1272)
201 door (CB *-dàngò C.S. 552)	215 smoke	584 clean (CB *-céd- p.s. 85)
211 to kindle	218 firewood (CB *-kúị̀ C.S. 1181)	
(CB *-pʉ̀ʉ̀p- C.S. 1632)	244 mat (CB *-kéká p.s. 290)	

Table 174: Stable concepts in the field 'The House'

Kamba has been affected most severely by borrowing in this field, i.e. in a total of 22 cases:

198 wall (Sw.)	205 room (Sw., Eng.)	250 matchet (Sw.)
199 roof	210 fireplace (Sw.)	252 knife
200 window	220 cooking stones (Sw.)	254 blunt
202 to open (Sw.)	243 chair	255 broom (Sw.)
203 to shut (Sw.)	246 basket (Sw.)	256 to sweep (Sw.)
204 to enter	247 bottle (Sw.)	257 lamp (Sw.)

258 mirror	262 to split firewood
259 rope (downhill)	370 to paint

Table 175: Items affected by borrowing in Kamba

The eastern dialects, in turn, show borrowing in the following twelve cases:

200 window (Sw.)	246 basket (Sw.)	252 knife
205 room (Eng.)	247 bottle (Sw.)	257 lamp (Sw.)
207 fence (Eng.)	250 matchet (Sw.)	258 mirror
243 chair (Sw.)	251 axe (Ma., Sw.)	370 to paint

Table 176: Items affected by borrowing in Eastern

The western dialects have been affected by borrowing in the following cases:

199 roof (Sw.)	247 bottle (Sw.)	258 mirror
200 window (Sw.)	250 matchet (Sw.)	370 to paint (Sw.)
243 chair (Sw.)	252 knife	
246 basket (Sw.)	257 lamp (Sw.)	

Table 177: Items affected by borrowing in Western

The following conclusions may be drawn from the qualitative review of the semantic class 'The House':
Only a relatively small amount of twelve items seem to be unaffected by borrowing in all of Central Kenya Bantu. Conservative items from Common Bantu, such as *196 to build*, *197 house*, or *214 charcoal*, seem to refer to an ancient (East) African domestic culture.
The major factor in this field is external borrowing, especially from Swahili. Kamba seems to have been affected by external borrowing most severely, both from Swahili and unknown donors. In general, the Swahili loanwords in this field refer to a number of commodities normally used in any regular modern household. The most widespread Swahili loans are the items *200 window*, *246 basket, 247 bottle*, *250 matchet*, *257 lamp*, and *370 (to) paint* – they refer to technological innovations, that were, presumably, introduced through trade with coastal merchants. Some items relate to specific building techniques that were introduced in colonial times: English loans under the keyword *205 room*, for example, attest to the fact that traditional houses had been built without a division into rooms in Central Kenya in pre-colonial times. In general, we may assume different waves of Swahili contact.
However, such a claim can only be made based on distributional rather than formal considerations in this field. The fact that widespread items, such as *window* and *bottle*, show a multitude of forms suggest parallel borrowing. The fact that Kamba has been affected by Swahili to a larger extent than the remaining varieties indicates that Kamba has the longest tradition of Swahili contact in all of Central Kenya. The eastern and western dialects, both less affected by borrowing from Swahili, seem to have been influenced at the latest stage, i.e. when colonial rule was fully established in the first decade of the 20th century.
In sum, most of the external loans in this field have only impacted a limited number of dialects. In other words, diffusion has not been severe enough for a homogenizing effect on the entire group (as it is the case in the field 'Law'); it rather resulted in the leveling of adjacent dialects – or it has even diversified the linguistic profile due to the emergence of partially divergent forms.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	possibly innovations in Kamba (ex. 250)	Exclusive contact w/ external donors in Kamba (ex. 251)	-
East vs. Rest	high	possibly divergence (ex. 253, 254)	Internally diversified by exclusive Maasai contact and parallel Swahili borrowing (ex. 256)	-

Table 178: Summary of the qualitative analysis in the field 'The House'

Total number of items	41	
Inconclusive cases	4	
	37	
Items affected by borrowing	Kamba	22 (59%)
Swahili: 16 Maasai: 1 English: 2	Western	10 (27%)
	Eastern	12 (32%)
Average borrowability in CKB		**39,3%**
Loanword typology (Tadmor 2009)		37,2%

Table 179: Domain statistics for the field 'The House'

16. Clothing and Grooming

This field ranks at the top of the loanword typology (Haspelmath and Tadmor 2009a), showing an average of 38,6 percent of loans; it is only outnumbered by the field 'Religion', for which, however, only insufficient data are available in this study. The field 'Clothing and Grooming' is, therefore, the final semantic domain to be investigated here. The following twelve items are reviewed in this field:

052 to take a bath	413 hat (Sw. *kofia*)	418 stockings (Sw. *soksi*)
(CB *-càmb- C.S. 267, Ma. *a-él*)	414 shirt (Sw. *shati*)	419 shoe
263 to sew	415 shorts (Sw. *suruali*)	420 fingerring (Sw. *pete*)
(CB *-tu̱m- C.S. 1865, Sw. *-shona*)	416 trousers (Sw. *suruali*)	421 to plait (Sw. *-suka*)
409 clothing (CB *-gùbò C.S. 873)	417 iron (Sw. *-piga pasi*)	

Table 180: Items reviewed in the field 'Clothing and Grooming'

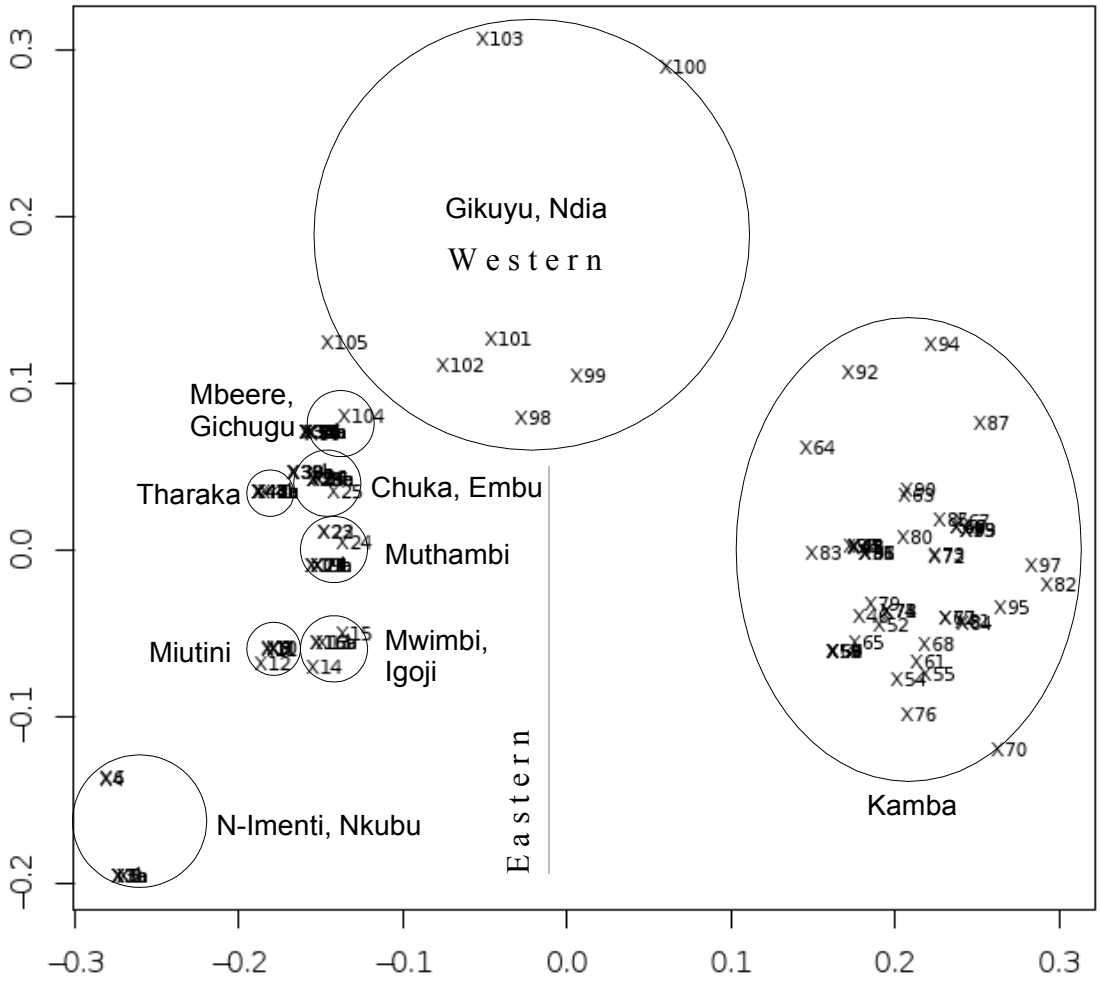


Figure 47: Multidimensional scaling of lexical distances in the field 'Clothing and Grooming'

In most general terms, figure 47 confirms the three-way split of Central Kenya Bantu indicated by the overall dialectometrical results (figure 29 in section 3.2.1) as well as a number of previously discussed semantic domains: Kamba is set apart from the remaining varieties; the western dialects are relatively distant to most eastern varieties.

A number of specification need to be made in regard to figure 47. It is true that most western locations are distinct from their eastern neighbors in this field. However, Gichugu constitutes one cluster with its eastern neighbor Mbeere. The typical split between Western and Embu-Mbeere is somewhat dissolved in this field. Moreover, the eastern dialects do not constitute a single cluster in this field, as Imenti and Nkubu, the two northernmost dialects, are considerably distant to their neighbors on the eastern slopes of Mount Kenya. The relatively large diversity within the western cluster seems to be based on a conceptual difference (see example 258).

There are three items that are unaffected by borrowing in this semantic class: The case of *clothing* represents the typical three-way split of Central Kenya Bantu based on phonological divergence. The item *to wear* unites Eastern and Western, while separating the two from Kamba due to divergence. The keyword *shoe* also seems to attest to divergence, even though no connection to Guthrie (1967-71) or Bastin et al. (2002) can be made in this case. Nevertheless, we may assume that the terms under the keyword *shoe* relate to an old concept, that is found in all of Central Kenya and beyond (cf. Swahili *kiatu*):

(257)	409 clothing	CB *-gùbò C.S. 873	>	*ngUa, ngUɔ*	Kamba
			>	*nguU*	Eastern
			>	*nguɔ*	Western
	410 to wear	CB *-bíík- C.S. 122	>	*-ɪ:kɪra (nguU)*	Eastern, Western
		cf. 358 to put into	>	*-ɪkɪa (ngua)*	Kamba
	419 shoe	*-datu	>	*kɪ.ra:tU*	Eastern + Ndia, Gichugu
			>	*kɪ.ratU*	Western
			>	*kɪ.atU*	Kamba

There is one additional item – *to sew* – in this field attesting to a regular relation with Common Bantu for all of Central Kenya Bantu. However, we find a Swahili loan in one location of Kamba as well as conceptual issue in one location of Nyeri-Gikuyu:

(258)	263 to sew	CB *-tɣ́m- C.S. 1865	>	*-tuma*	all except for
		Sw. *-shona*	>	*-sɔna*	Kamba (87)
		'to split, to seize'		*-tigaða*	Nyeri (100)

All of Central Kenya Bantu relates to Common Bantu under the keyword *to sew*. The verb *-tuma* also appears under the meanings *196 to build* and *421 to plait hair*. The verb *-sɔna* is, in turn, borrowed from Swahili.
The stem *-tig-*, listed in (258), seems to be typical of the informant interviewed in location 100 of Nyeri Town: The informant also uses related forms under the meanings *098 to seize* and *262 to split*, both activities that may be metaphorically understood as relating to the notion of sewing. The relevant location 100, figure 47 above shows, is considerably distant to the remaining locations of Western – the conceptual difference shown under the keyword *to sew* seems to contribute to the internal diversity of the western dialects in this domain.
Thirteen items in this field have been affected by external borrowing, especially from Swahili. There are two cases distinguishing Kamba from all other varieties:

(259)	416 trousers	*mU.bu:tɔ*	Eastern, most of Western
		mU.butɔ	Kamba (widespread)
			versus
		sulualɪ ndasa	Kamba (< Sw. *suruali*)
		sulualɪ mw.asa	Kamba (< Sw. *suruali*)
	417 to iron	*-ringa baci, -ringa baði, -ba:ca*	Eastern, Western (Sw. *-piga pasi*)
			versus
		-kuna basi	Kamba (Sw. *-piga pasi*)

Both cases in (259) above attest to external borrowing in all of Central Kenya. Kamba, however, shows forms different from the remaining varieties in both instances: In the case of *trousers*, Kamba agrees with its neighbors by showing the form *mʊ.butɔ,* whose origin is not quite clear. It is certain that *mʊ.buːtɔ* in Eastern and Western is a loan, as the occurrence of /b/ is generally considered aberrant. Possibly, the relevant source word is English *boot*.
In the case of *to iron* in (259), all varieties have been influenced by the Swahili term *-piga pasi*. All of Eastern and Western use the verb *-ringa*, that has the general meaning *164 to hit*. Insofar, the expression *-ringa baði* shows the Swahili loan *baði* as well as the loan translation *-ringa* (*-piga pasi* literally means 'to hit the iron', so does *-ringa baði*). Kamba shows the same type of construction, however, with an unrelated form, that expresses the same meaning *to hit* (*-kuna*).
There are two items that attest to different waves of Swahili contact. The following case in (260) shows integration of Swahili *soksi* in the Western dialects, while the remaining varieties attest to adaptation in this case:

(260)	418 stockings	Sw. *soksi*	>	*sɔksi*	Imenti (1-3), Nkubu (5), Igoji (15), Muthambi (24)	Adaptation
			>	*sɔkɪsɪ*	Kamba	
			>	*cɔːgici*	all remaining varieties except for *versus*	
			>	*ðɔːgiði*	Western (integration: CB *c > /ð/)	

In the above case of (262), only the Western dialects use the segment /ð/, relating to Common Bantu *c (see section 3.1.2 for a discussion of correspondence series $*C_3$). The segments /s/ and /c/ in all remaining dialects are considered loan phonemes, as they may not be regularly related to a common meta-language. In short, the Western dialects have integrated the Swahili word *soksi* into their phoneme systems while the rest of Central Kenya Bantu shows adaptation, i.e. speakers attempt to come as close to the original pronunciation of the source word by use a foreign sound.
The distinction between phonological integration and adaptation, in turn, enables us to specify the borrowing direction in the case of the keyword *shorts* in (261) below: All Central Kenya Bantu languages use loanwords going back to Swahili *suruali*. The Western dialects, again, show integration of this word, while adaptation is, for example, attested to by Kamba and Meru. Embu diverges in this case by showing an unusual form *ðurubari*:

(261)	415 shorts	Sw. *suruali*	>	*curuaːrɪ*	Meru (adaptation)
			>	*sulualɪ*	Kamba (adaptation)
			>	*ðuruarɪ*	Western (integration)
			>	*ðurubari*	Embu (integration + adaptation)

The case of Embu *ðurubari* above is insofar unusual as it attests to both adaptation and integration. Adaptation is shown by the use of the aberrant segment /b/. This may be attributed to a kind of hyper-correction, i.e. Embu speakers seem to have chosen to use the foreign segment /b/ in order stress the fact that *ðurubari* is a foreign word. The use of the dental fricative /ð/, in contrast, shows the integration of Swahili /s/ in Embu.

Example (260) above shows that the substitution of Swahili /s/ with /ð/ (integration) is typical of the Western dialects (see also correspondence series *C_2 in section 3.1.2). In the case of *shorts* in (261), however, Embu shows the same integration strategy as its western neighbors, i.e. the use of the dental fricative /ð/. We may, therefore, conclude that the form *ðurubari* spread into Embu via Gikuyu.

In short, the case in (261) enables us to identify two waves of Swahili contact: On the one hand, Meru seems to have borrowed Swahili *suruali* via Kamba, yielding *curuaːrɪ*. The western dialects, in contrast, seem to have borrowed the item at a later stage, namely after the western highlands came into the focus of British interest by the beginning of the 20th century. Embu seems to have borrowed the word by that time as well.

The item *hat* also attests to integration and adaptation in Central Kenya Bantu. Some varieties have integrated the Swahili word *kofia*, others attests to adaptation in this case:

(262)	413 hat	Sw. *kofia*	>	*nkɔbia*	Meru	Adaptation
			>	*ngɔːbia*	Tharaka	
			>	*ngʊbia*	Nyeri	
			>	*ngɔbia*	Nyeri, Kiambu, Murang'a	
			>	*nkɔɦia*	Igoji, Nithi, Chuka	Integration
			>	*ngɔɦia*	Nyeri	
			>	*ngɔvia*	Embu, Mbeere	
			>	*ngɔbia*	Gichugu, Kamba	

Meru, Tharaka, and the Gikuyu dialects of Nyeri, Kiambu, and Murang'a use the aberrant segment /b/, showing adaptation in the borrowing of Swahili *kofia*. In the remaining varieties, the segments /ɦ/ (Igoji, Nithi, Chuka), /v/ (Embu, Mbeere), and /b/ (Gichugu, Kamba) relate to Common Bantu *p (see correspondence series *P_1 in section 3.1.2) and, consequently, correspond regularily in these varieties.

In short, they show integration under the keyword *hat*, i.e. the Swahili fricative /f/ has been substituted by the genuine segment /ɦ/. The fact that the Meru dialects attest to adaptation, while most of their neighbors on the eastern slopes show integration, sets Meru (Imenti, Nkubu) apart from the remaining varieties of Eastern (see figure 47 above).

The relatively large distance between Imenti and Nkubu (both Meru) and all their immediate neighbors shown in figure 47 above is also due to exclusive borrowing from Maasai under the meaning *to take a bath*. All of Central Kenya Bantu relates to Common Bantu in this case. Imenti, Nkubu (as well as four additional locations on the eastern slopes) show a Maasai loan, which sets Imenti and Nkubu apart from all other varieties:

(263)	052 to take a bath	CB *-càmb- C.S. 267	>	*-(ɪ)ðamba*	all of CKB
		Ma. *a-él*	>	*-ɪːria*	Imenti, Nkubu (+ 12: Miutini; 14:Igoji; 38, 39: Mbeere)

In the case of *fingerring*, in contrast, the Meru dialects of Imenti, Nkubu, and Miutini are the only varieties not affected by borrowing from Swahili:

(264)	420 fingerring	*kɪ.mata*	Meru: Imenti, Nkubu, Miutini
		v e r s u s	
		mbɛtɛ	all remaining varieties (< Sw. *pete*)
			(≠ CB *-pété C.S. 1497; expected: *ɦɛtɛ)

External borrowing is the major factor in this semantic domain. In total, seven cases of Swahili contact and one instance of borrowing from Maasai can be identified:

(265) **a. Swahili**

263 to sew	Sw. *-shona*	>	1 form in Kamba (87)
413 hat	Sw. *kofia*	>	8 forms in all of CKB
414 shirt	Sw. *shati*	>	2 forms in all of CKB
415 shorts	Sw. *suruali*	>	10 forms in all of CKB
415 trousers	Sw. *suruali*	>	4 forms in Kamba and Nyeri
417 to iron	Sw. *-piga basi*	>	4 forms in all of CKB
418 stockings	Sw. *soksi*	>	3 forms in all of CKB
420 fingerring	Sw. *pete*	>	1 form in all of CKB (exc. Imenti, Nkubu)
412 to plait	Sw. *-suka*	>	2 forms in Imenti, Nkubu, Miutini, Kamba

b. Maasai (Möhlig 1974a)

052 to take a bath	Ma. *a-él*	>	2 forms in Imenti, Nkubu, Tharaka

Two items indicate lexical diffusion in Kamba due to vernacular teaching: In the case of *416 trousers*, the form *mʊ.butɔ* competes over distribution with the Swahili loan *suluali*. The former item is more widespread than the latter, which is, possibly, due to its use in local school literature (Mwende 2006: 83). In the case of *421 to plait*, the two most widespread forms in Kamba are *-kwata* 'to seize' (< CB *-kúát- C.S. 1172) and the Swahili loan *-suka* (< Sw. *-suka nywele*). The use of the latter item is, possibly, encouraged by school literature (ibid.).

In sum, only three out of thirteen items may be classified as conservative, i.e. no borrowing is involved in the cases of *409 clothing* (CB *-gùbò C.S. 873), *410 to wear* (CB *-bíík- C.S. 122), and *419 shoe* (*-datu). The remaining ten items are all affected by borrowing from Swahili.

The following conclusions may be drawn from the qualitative investigation of the semantic class 'Glothing and Grooming':

Swahili is the most important donor language in this field. Nine out of twelve items reviewed in this class attest to borrowing from Swahili. In six cases, all of Central Kenya Bantu has been affected by Swahili influence. This relates to the fact that certain garments, such as *shirt* or *shorts*, have become popular in the Kenyan Highlands relatively recently, i.e. they were distributed widely with the beginning of colonial times. In the case of *shorts*, I argue that there have been two routes along which the relevant Swahili items were imported from the coast – via Kamba versus via Western. In general, the widespread Swahili loans all show a relatively large amount of diversity, which has prohibited homogenization to affect the entire

group. Rather, only adjacent dialects have been homogenized by mutual Swahili contact in this field. This, incidentally, suggests different waves of Swahili contact.

Case	rel. distance	Inheritance	Contact	Comment
Kamba vs. Rest	high	divergence (ex. 257)	Unique way of borrowing from Swahili in Kamba (ex. 261)	-
West-Embu etc.	low	-	Mutual Swahili borrowing (ex. 261, 265)	Massive Swahili influence decreased the gap between West and Embu-Mbeere
Imenti-Nkubu vs. Rest	high	-	Imenti-Nkubu less affected by Swahili (ex. 264), while exclusively influenced by Maasai (ex. 265)	Exclusive external contact contributed to the split between Imenti/Nkubu and the remaining eastern varieties

Table 181: Summary of the qualitative analysis in the field 'Clothing and Grooming'

Total number of items	12	
Inconclusive cases	0	
	12	
Items affected by borrowing	Kamba	8 (67%)
Swahili: 9 Maasai: 1	Western	7 (58%)
	Eastern	8 (67%)
Average borrowability in CKB		**64,0%**
Loanword typology (Tadmor 2009)		38,6%

Table 182: Domain statistics for the field 'Clothing and Grooming'

(4) Conclusion

The lexical analysis reveals that Central Kenya Bantu may synchronically be divided into three major groups: (1.) Western Kirinyaga, (2.) Eastern Kirinyaga, and (3.) Kamba. Embu-Mbeere is somewhat intermediate between Western and Eastern, however, most closely affiliated with its eastern neighbor Chuka; it and may, therefore, be considered a part of Eastern Kirinyaga.

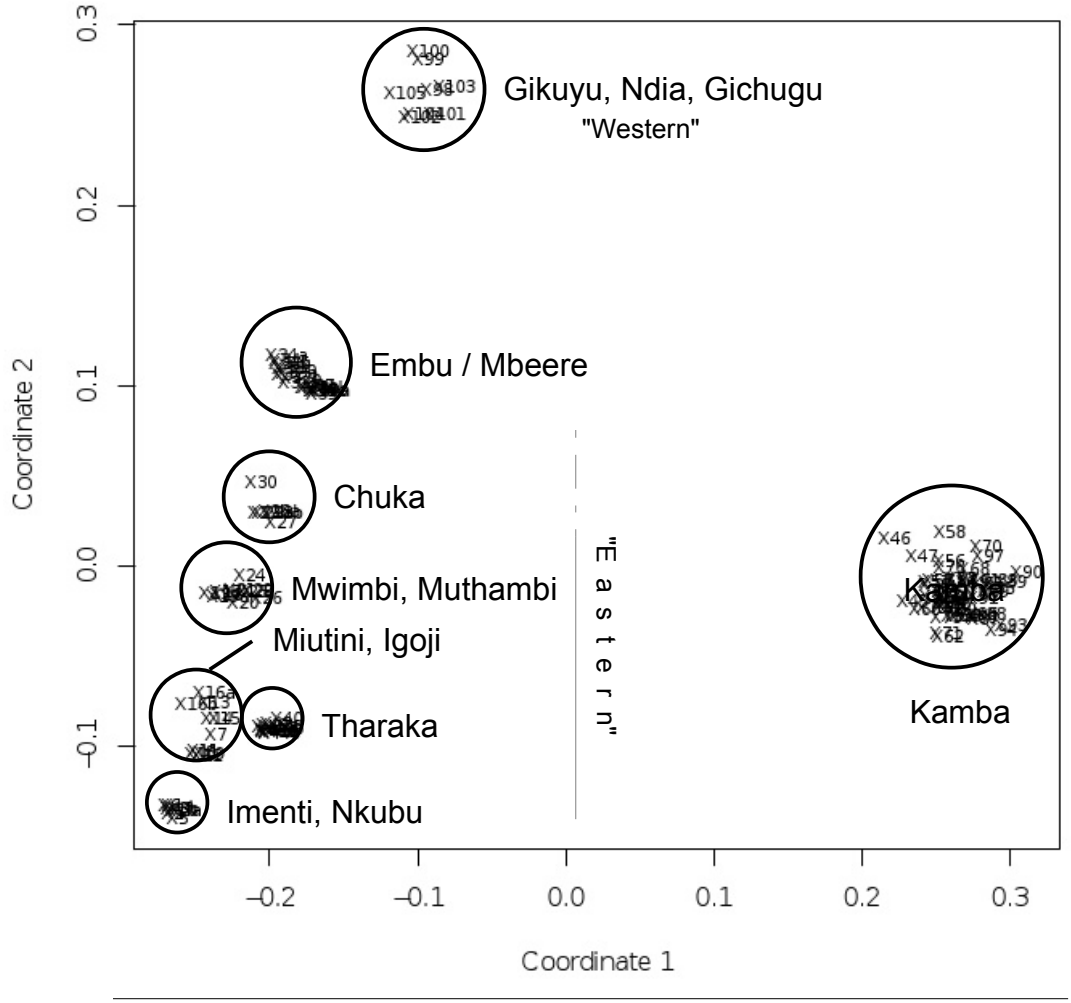


Figure 49: Lexical Distances in Central Kenya Bantu

The particular outcome of the statistical analysis is due to different historical processes, both genealogical and areal. If any two dialects are particularly close, i.e. they constitute an area of relatively low linguistic variation, this may either be based on inheritance or on language contact – or on both of these factors.

In some cases, both inheritance and contact have contributed to the emergence of lexically homogeneous areas. I.e. dialect A and dialect B may be close to each other due to shared innovations; mutual borrowing from external donors or lexical transfer between A and B may have even decreased the lexical distances between the two varieties.

Relatively high lexical distances may also be based on both inheritance and contact: I.e. dialect A and B may be relatively far apart lexically based on linguistic divergence. External influence on one of the two varieties may even increase the lexical distance, as one dialect is

'pulled away' from the other, for example, by Swahili influence, that has only impacted dialect A, while dialect B remained unaffected.
The lexical analysis shows that Kamba is, in the vast majority of cases, rather distinct from all other varieties. Kamba is set apart based on a large number of lexemes. In other words, it is relatively easy to identify bundled isoglosses that separate Kamba from the remaining varieties. In many cases, this is due to genealogy:
The following example (266) shows that Kamba and the remaining varieties have diverged phonologically:

(266)	302 shield	CB *-gàbò C.S. 756	>	*ngaɔ*	Kamba
				v e r s u s	
			>	*ngɔ*	Western, Eastern, Embu, Mbeere
	333 frog	CB *-yùdá C.S. 2150	>	*ky.ɔa*	Kamba
				v e r s u s	
			>	*kɪ.ʊːra*	Western, Eastern, Embu, Mbeere

In other cases, Kamba is distinguished by an innovation not attested outside Kamba, e.g.:

(267)	355 to try	*-tata*	Kamba
		v e r s u s	
		-gɛːria	Western, Eastern, Embu, Mbeere (< CB *-gèd- C.S. 797)

Example (267) shows that Kamba is the only variety to not have retained the Common Bantu item under the keyword *to try*. Based on its regular shape and widespread distribution, the form *-tata* is likely to be a genuine Kamba word. Regarding example (267), Kamba is further apart from Common Bantu than all other Central Kenya Bantu languages.
The following example (268) shows the opposite picture, i.e. Kamba has retained a Common Bantu item, while the remaining varieties share an innovation:

(268)	139 to speak	*-nɛːna*	Kamba < CB *-néén- C.S. 1346
		v e r s u s	
		-aːria	Western, Eastern, Embu, Mbeere

In sum, Kamba may be distinguished based on inheritance. We may conclude that the history of Kamba and the history of the remaining varieties have been rather separate for a long time, i.e. prior to the immigration of Bantu speakers into the Kenyan Highlands. For this reason, the lexical distances between Kamba and all other languages are relatively high (see figure 49).
This genealogical gap between Kamba and the remaining varieties has never been bridged by convergence (except in the semantic domain 'Law' – see below). On the contrary: Lexical diffusion from external donors into Kamba seems to have even increased the distance between Kamba and all other varieties. The qualitative analysis showed that Kamba is most severely affected by language contact with external donors, e.g.:

(269)	375 to push	CB *-tĵnd- C.S. 1758	>	*-tindıka*	all of CKB
					v e r s u s
		Sw. *-sukuma*	>	*-sʊkuma*	Kamba only
		unknown donor	>	*-luuta*	Kamba only

Example (269) shows that all varieties (including Kamba) dispose of forms related to Common Bantu under the keyword *to push*. Kamba, however, shows additional forms: One is borrowed from Swahili, the other one needs to be considered a loan as well (based on the aberrant segment /l/). A large amount of items attest to language contact between Kamba and external donors that have not influenced any other dialects. This, again, points towards the conclusion that the history of Kamba and the history of the remaining varieties may have been separate for a long time.
This is also confirmed by another set of cases, that show external influence on Eastern and Western, whereas Kamba is unaffected, e.g.:

(270)	285 donkey	*ı.ŋɔi*	Kamba	
			v e r s u s	
		ntigiri	Meru, Igoji, Nithi, Tharaka	< Ma. *o-síkìrìà*
		mpunda, (m)bunda	Embu, Mbeere, Chuka, Western	< Sw. *punda*

The qualitative analysis shows that Kamba may be distinguished based on a vast amount of lexical isoglosses: On the one hand, Kamba and the remaining varieties have diverged, both morphologically and phonologically. In some cases, Kamba shows innovations not attested otherwise (i.e. Kamba is set apart by the dialectometrical factor of full divergence).
On the other hand, language contact has contributed to the relatively large distance between Kamba and the other languages: In many cases, Kamba is the only variety to have been affected by external donors. In other cases, Kamba is the only language that remained unaffected, for example, by contact with Swahili and Maasai, as shown in example (270).
The western dialects, i.e. Gikuyu as well as Ndia and Gichugu, are also clearly distinct from all remaining varieties. Figure 49 above shows a relatively high distance between Western and all other varieties. In this case, however, bundled isoglosses are more difficult to identify than it is the case in Kamba. Nevertheless, the qualitative analysis showed that a number of items attest to a genealogical split between Western and the rest of Central Kenya Bantu, e.g. by way of phonological divergence:

(271)	554 to hear	CB *-yĵgʉ- C.S. 2043>				
		-igua	Western	vs.	*-i:gwa*	Meru, Igoji
					-ı:gwa	Nithi, Chuka, Embu, Mbeere, Tharaka
					-i^{g}wa	Kamba

In other cases, Western shows innovations not attested otherwise, e.g.:

(272)	453 mud	CB *-tàká C.S. 1649 >		*ndaka*	Kamba, Embu, Mbeere
			>	*ntaka*	Eastern
				versus	
				ndɔrɔ	Western

Exclusive language contact between external donors and the western dialects seems to have contributed to the relatively high distance between Western and the remaining varieties. Especially English influence has been much stronger in Gikuyu, Ndia, and Gichugu than in any other variety, e.g.:

(273)	524 week	Eng. *week* >	*wiki*	Western: Nyeri, Murang'a, Ndia	
				versus	
				forms relating to *-uːma* 'to finish'	
				in all other dialects	
	375 to exchange	Eng. *to exchange* >		*-cɪnjania, -sɪnjania*	Western
				versus	
				-kʊ(ːr)ania	Eastern, Kamba

Just as it is the case in the relation between Kamba and the remaining varieties, the western dialects, too, are distinguished by both inheritance and contact. On the one hand, the western dialects have diverged from the other varieties. On the other hand, they have been distanced from all their neighbors due to exclusive borrowing from external donors, such as English.
In contrast to the case of Kamba, however, the distances between Western and its eastern neighbors are not quite as clear-cut: The analysis of different semantic domains showed that Western and the geographically adjacent dialects Embu and Mbeere, for example, constitute a single cluster in a number of fields. Again, this may be attributed to both shared innovations and diffused items. In some cases, shared innovations between Western and Embu-Mbeere yield relatively low distances between these varieties. In other cases, lexical diffusion has led to the synchronic clustering of Western and some of its eastern neighbors (see below).
In the overall outcome of the lexico-statistical analysis of figure 49 above, the Eastern dialects are distinct from Western (as well as Kamba). Figure 49 also shows that the eastern dialect cluster is the most lexically diverse group within Central Kenya Bantu. This diversity, it seems, is mainly due to lexical divergence – however, (parallel) borrowing from external donors has contributed to the internal diversity of Eastern Kirinyaga.
The following examples in (274) show two facts: On the one hand, they show how the eastern dialects seem to have diverged from all other varieties. In other words, the forms attested for Kamba and Western differ partially from the ones shown in Eastern. On the other hand, the following examples also show the diversity in Eastern (and the lack of bundled isoglosses) due to divergence within Eastern:

(274)	554 to hear	CB *-yígụ- C.S. 2043	>	*-i:gwa*	Nkubu, Imenti, Igoji	Eastern
			>	*-ɪ:gwa*	Nithi, Chuka, Embu, Mbeere, Tharaka	
			>	*-igua*	Western	
			>	*-i^{g}wa*	Kamba	
	523 year	CB *-yàkà C.S. 1904	>	*mU.a:ka*	Nkubu, Imenti,Nithi, Chuka, Embu, Mbeere	Eastern
			>	*mU.anka*	Miutini, Igoji, Tharaka	
			>	*mw.aka,*	Kamba	
			>	*mU.aka*	Western	

Lexical diffusion has, in some cases, contributed to the internal diversity within Eastern: In the following case (275), the heterogeneity within the eastern cluster is due to the fact that some eastern varieties have borrowed from Swahili, while others use a Maasai loan:

(275)	285 donkey	Ma. O-síkìrìà	> *ntigiri*	North-East	Imenti, Nkubu, Miutini, Igoji, Mwimbi-Muthambi, Tharaka
				versus	
		Sw. *punda*	> *mpunda, (m)bunda*	South-East	Embu, Mbeere, Chuka

In lexical terms, the eastern dialects are the most diverse cluster. On the one hand, this is due to divergence. On the other hand, different borrowing processes from external donor languages have contributed to the internal diversity of the eastern Kirinyaga dialects.
Both inheritance and contact contributed to the synchronic clustering of Central Kenya Bantu. The qualitative analysis of different semantic domains in the previous section, in turn, makes it evident that the different varieties may change their lexical affiliations depending on the semantic class under investigation.
In 15 out of 16 investigated semantic domains, Kamba is rather distinct from all other varieties. In contrast, the remaining varieties may show various affiliations in different semantic fields. Especially Embu and Mbeere may be either particularly close to their eastern neighbors or they may be closely affiliated with Gikuyu, Ndia, and Gichugu. The northernmost varieties, i.e. the Meru dialects of Imenti and Nkubu, also show different degrees of distance in regard to their closest neighbors – depending on the semantic class to be reviewed.
The following pages provide a discussion of four exemplary semantic domains, which aims at showing how the lexical affiliations of different dialects may change in accordance with the different semantic fields under review.

typical 3-way-split: Eastern **vs.** Western **vs.** Kamba

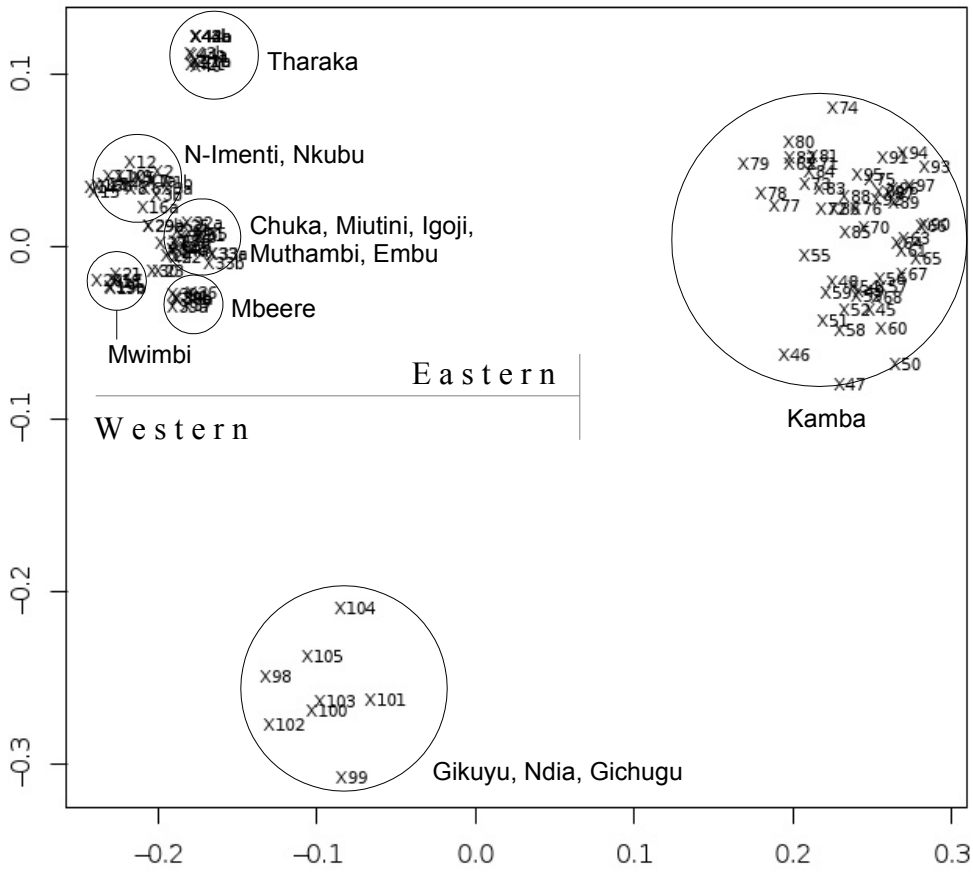


Figure 50: Lexical distances in the field 'The Human Body'

2-way-split: Eastern + Western **vs.** Kamba

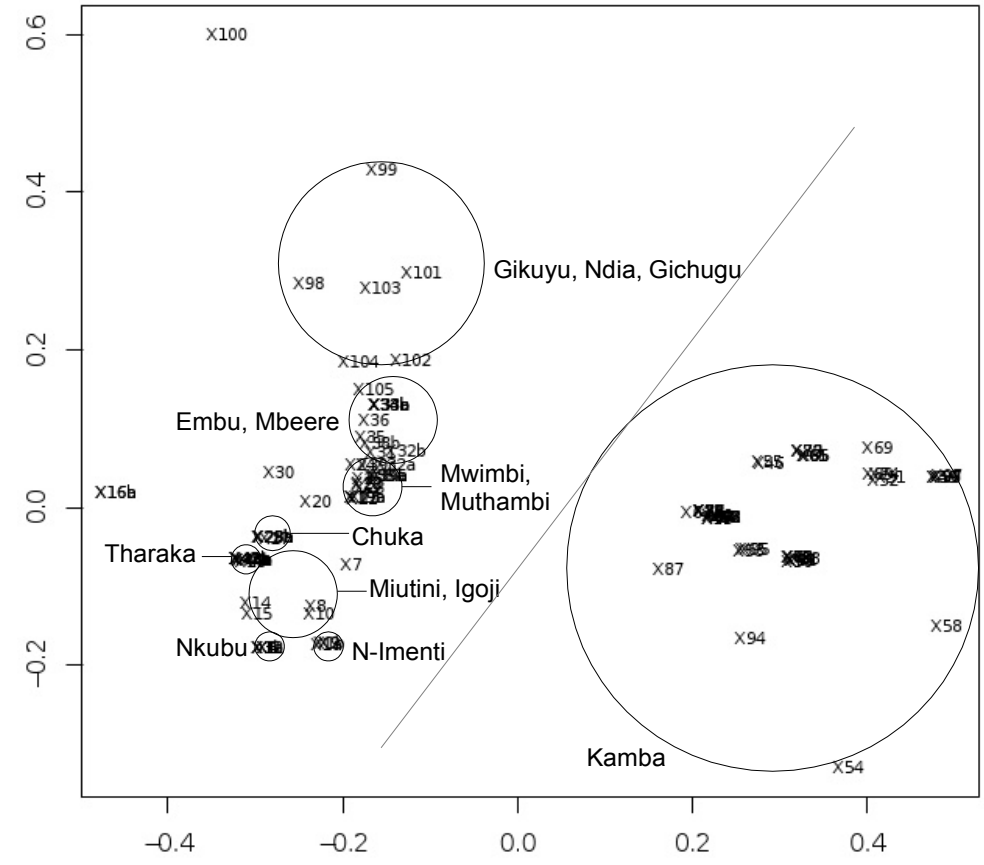


Figure 51: Lexical distances in the field 'Motion'

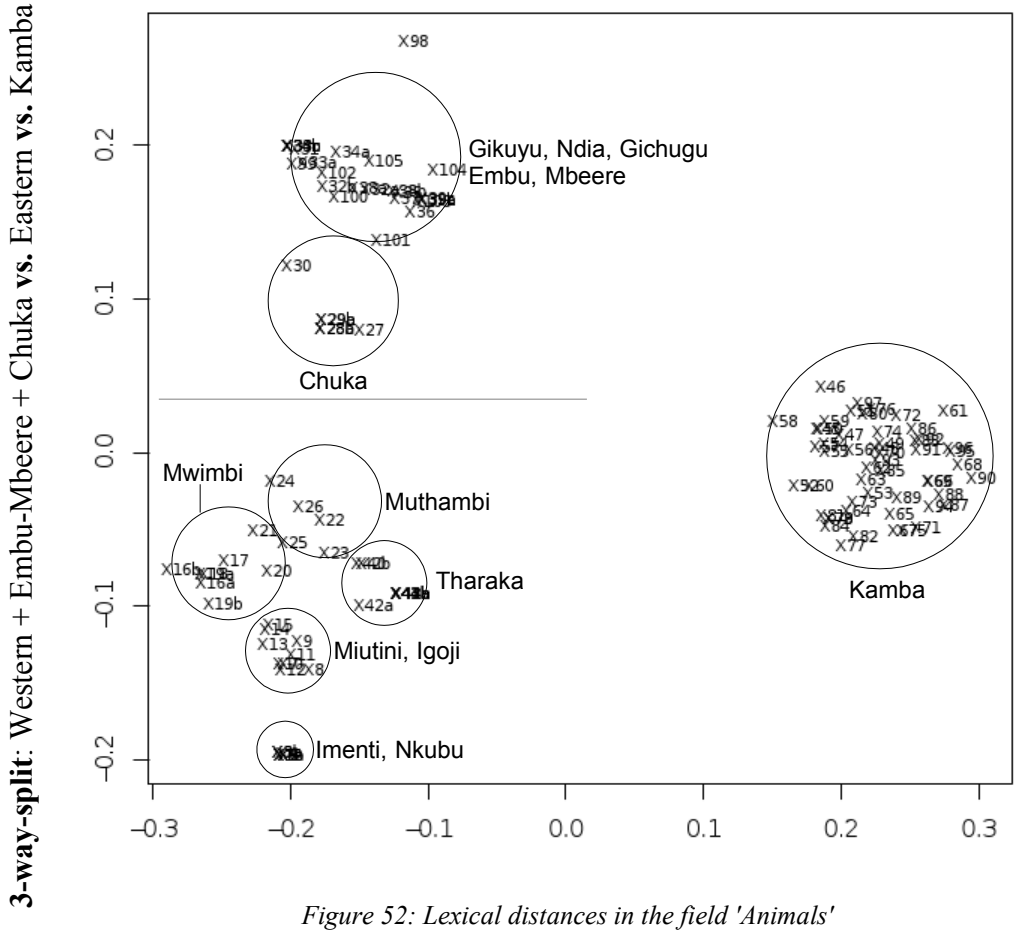


Figure 52: Lexical distances in the field 'Animals'

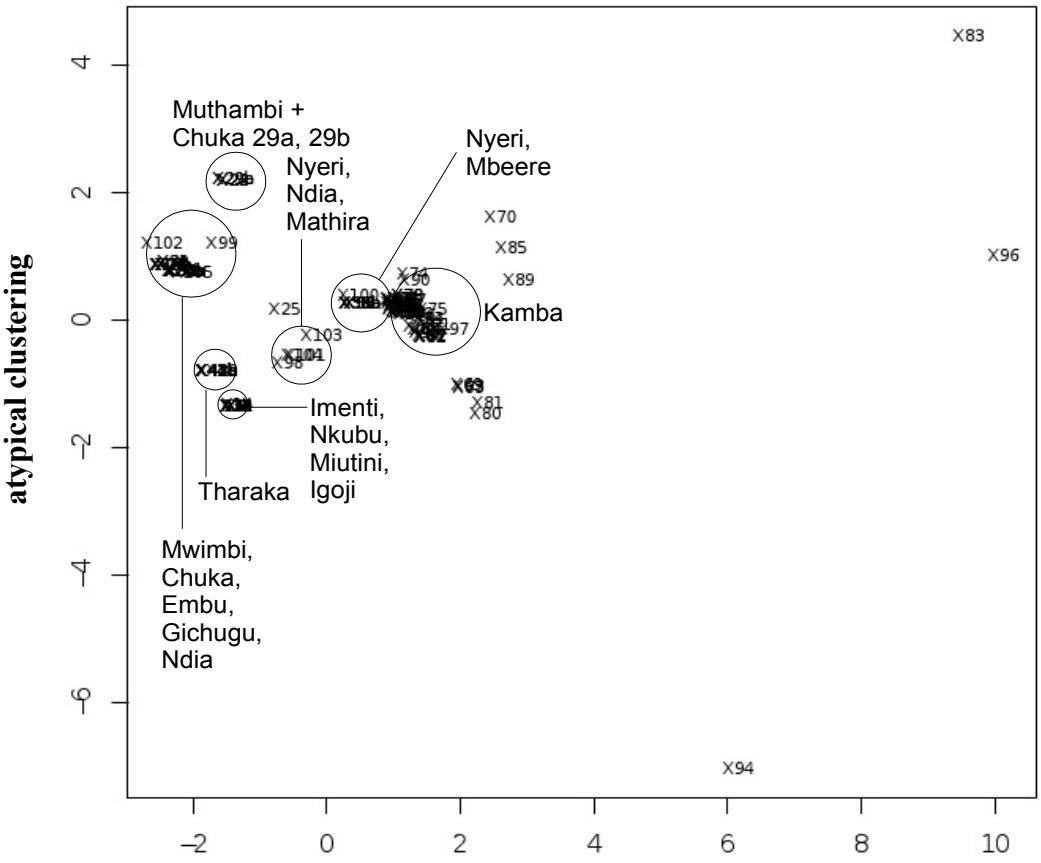


Figure 53: Lexical distances in the field 'Law'

The above figures 50 through 53 each show different lexical affiliations:

1. Figure 50 ('The Human Body') shows a clear-cut three-way split, i.e. West vs. East vs. Kamba.
2. This division is somewhat dissolved in figure 51 ('Motion'), which rather depicts a two-way split, i.e. Kamba on the one side, and all remaining dialects clustered on the other side.
3. Figure 52 ('Animals'), again, shows a three-way split; in contrast to the field 'The Human Body' (figure 50), however, Embu-Mbeere (and Chuka) are grouped with the western dialects.
4. The typical clustering is dissolved altogether in figure 53 ('Law'), which shows groupings of usually diverse varieties, such as Mwimbi and Gichugu or Mbeere and Kamba.

(1.) The Human Body

The semantic class 'The Human Body' is characterized by a relatively large amount of stable lexical items, i.e. 32 out of 71 reviewed meanings (45%) refer to concepts that seem conservative in all of Central Kenya Bantu. The qualitative analysis showed that each of the three major clusters is set apart due to linguistic divergence, i.e. different ways of reflecting mutually inherited items. In addition, Kamba and Eastern each show a number of unique innovations that distinguish these two clusters from each other as well as from Western. The fact that Embu-Mbeere is most closely linked to the eastern varieties seems to be due to common heritage as well. This may be understood as an indication that Embu-Mbeere is historically a part of the eastern cluster – rather that belonging to the western varieties.
Moreover, different borrowing processes have contributed to the relatively large lexical distances between the three groups, Eastern, Western, and Kamba, in this domain:

- Swahili > Western
- Maasai, Cushitic > Eastern
- unknown donor > Kamba

In short, next to divergent processes, the three major groups – East, West, Kamba – have been distanced from each other by different external influences in this field: The three clusters are separated by large lexical distances due to genealogy; in addition, external borrowing from different donors has increased the lexical distances in regard to body terminology.

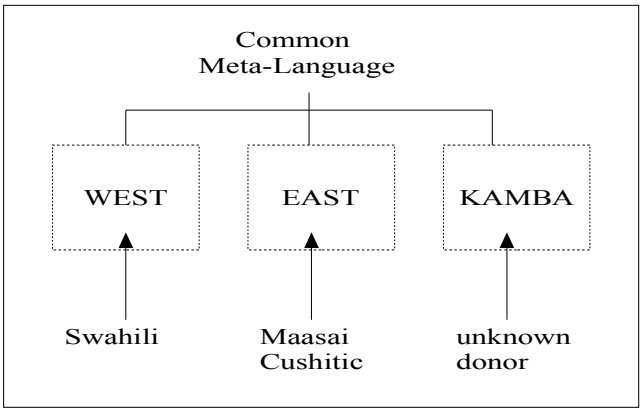


Figure 54: Major dynamics in the field 'The Human Body'

(2.) Motion

Unlike the field 'The Human Body' (figure 50), showing a three-way split, the field 'Motion' (figure 51) shows a general two-way split of Central Kenya Bantu: Kamba, again, is distinguished from the remaining varieties, which are, in turn, grouped relatively closely.
The qualitative analysis showed that Kamba is set apart due to genealogy as well as exclusive contact with external donors in this field. The following example (276) attests to the genealogical split between Kamba on the one hand and all remaining varieties on the other:

(276) a. Innovation in Kamba

081 to leave	CB *-tį́g- C.S. 1746	>	*-tiga*	Eastern, Western
		>	*-tia*	Kamba
	additionally attested in Kamba: *-ɛka, -ɛkana*			(innovation)

b. Innovation in Eastern and Western

085 to arrive	*-kiɲa*	Eastern, Western	(innovation)
	-bika	Kamba	< CB *-pį̀k- C.S. 1550

In addition to linguistic divergence, Kamba is distinguished by the fact that it has been influenced bby external donors that never affected the remaining varieties, e.g. in the case of *to fall*. Eastern and Western agree in using the form *-gʊa*, while Kamba shows the aberrant shape *-balʊka*, most likely a loan:

(277) 103 to fall	*-balʊka*	Kamba	< S-Cush. *tluk', *tluuk' (Ehret 1980: 217) ?
		v e r s u s	
	-gʊa	Eastern, Western	

The distinction between Kamba and all remaining varieties is not only shown by the overall statistical outcome of the lexical analysis (cf. figure 49 above), but also in almost every semantic field. In the field 'Motion', too, convergence has not been strong enough to bridge this gap between Kamba and the other varieties. Insofar, the position of Kamba in the semantic domain 'Motion' may be considered typical.
In contrast, the relatively low distances between the western and the eastern dialects in this field (figure 51) is somewhat atypical compared to the overall outcome (figure 49). Figure 51 shows that Mwimbi and Muthambi are relatively close to each other in this field. This is not unusual, as these dialects typically belong to the eastern cluster and are geographically adjacent to each other. They also show a strong connection to Embu-Mbeere in this field, which, in turn, is closely linked to the western varieties Gikuyu, Ndia, and Gichugu. In short, the gap we usually find between Embu-Mbeere and Western is not shown in this field.
The qualitative analysis showed that this low amount of variation between Western, Embu-Mbeere, and Mwimbi-Muthambi in this field is mainly based on shared innovations. Example b) in (276) above shows an innovation shared by all of Eastern and Western. The following case (278) shows an innovation shared by Western, Embu-Mbeere, and Muthambi:

(278)	084 to come	*-ʊ:ka*	Muthambi, Embu, Mbeere	
		-ʊka	Western, (also Kamba)	
			versus	
		-ɪ:ja	Meru, Igoji, Mwimbi <	CB *-yìi- C.S. 2045
		-uja	Chuka, Tharaka <	CB *-yìi- C.S. 2045

In this field, 15 items have been compared. 14 items are conclusive in qualitative terms. Out of these 14 items, only two show signs of borrowing in Eastern and Western: *094 to return* and *100 to swim*. Under the former keyword, Maasai loans are found in all of Central Kenya Bantu. In total, six phonologically divergent forms appear – this keyword contributes to the internal diversity within the group.
The keyword *to swim*, in contrast, shows loanwords only in a limited number of dialects, all of them belonging to Eastern and Western:

(279)	100 to swim	*-càmb- C.S. 267	>	*-ðambɪra*	Eastern, Gikuyu: Kiambu, Murang'a, Mathira
			>	*-ðambɪa*	Kamba
			>	*-ɪ.ðambɪra*	Gichugu
			Eastern & Western	*-bʊtɪra*	Mwimbi (17, 21), Muthambi (24) Chuka (29), Tharaka (41-43)
				-bʊcɪra	Chuka (28)
				-ɪ.bʊtɪra	Embu, Mbeere (31, 32)
				-bʊtɪa	Mbeere (36, 38), Ndia
				-tʊbɪra	Nyeri

The case of *to swim* in (279) shows that, on the one hand, Eastern and most of Gikuyu are connected by genealogy. On the other hand, the two western dialects Ndia and Nyeri-Gikuyu share similar loans of unknown origin with Embu, Mbeere, Mwimbi, and Muthambi. In the case of *to swim*, both inheritance and contact have contributed to the connection between Eastern and Western (at the same time, the item is partially responsible for the internal diversity of Eastern).
In total, however, the factor of genealogy seems to be the more important one in this field. In other words, shared innovation are the main reason why Western, Embu-Mbeere, and Mwimbi-Muthambi are particularly close in this field. On a side note, the fact that they are usually rather distant (in other fields as well as the overall outcome) represents the generally low amount of bundled isoglosses in Eastern and Western.
The following figure 55 shows the major historical dynamics responsible for the relatively low distances between Eastern and Western in the field 'Motion':

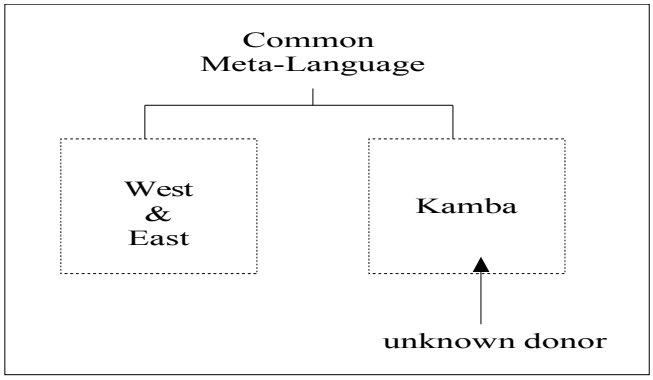


Figure 55: Major dynamics in the field 'Motion'

(3.) Animals

The above discussion of the fields 'The Human Body' and 'Motion' showed that Embu-Mbeere may exhibit different lexical affiliations depending on the semantic class under investigation: In the class 'The Human Body', it belongs to the eastern group, while it is rather close to the western dialects in the field 'Motion'.
In the field 'Animals', Embu-Mbeere, again, shows little variation in comparison to Western, i.e. the distance between Embu-Mbeere and Western is relatively low (cf. figure 52) – Embu-Mbeere and Western may even be described as a single cluster in this semantic domain.
Most eastern dialects are grouped together in lower left of figure 52. Kamba, yet again, constitutes a single cluster, relatively far apart from all other varieties.
Kamba is set apart by divergence in this field. In addition, it has been under the influence by external donors that never affected Eastern and Western, e.g.:

(280) a. Divergence in Kamba

333 frog	CB *-yùdá C.S. 2150	>	*ky.ɔa, ky.ɔwa, ky.ʊa*	Kamba
			v e r s u s	
		>	*kɪ.ʊ:ra*	Eastern, Western

b. External influence in Kamba

331 lizard	*mwilʊ, (k)ɪ.tɛlɛmbʊ*	Kamba
	v e r s u s	
	nðikaði, njagaði	Eastern, Western

There has been some internal diffusion between Kamba and its neighbors in this field (cf. examples 190, 191 in section 3.2.2). However, convergence has not been strong enough to bridge the gap between Kamba and the remaining varieties.
In contrast, mutual borrowing from Swahili and English seems to have resulted in the homogenization of Embu-Mbeere and the Western dialects. Metaphorically speaking, we may say that Swahili and English have cast a net over both Western and Embu-Mbeere – the impact was so severe that Embu-Mbeere and Western hardly show any synchronic variation in this field, e.g.:

(281)	285 donkey	Sw. *punda*	>	*(m)bunda*	Western, Embu, Mbeere (+ 5 isolated attestations of *mpunda* in Eastern)
					v e r s u s
		Ma. *o-síkìrià*	>	*ntigiri*	most of Eastern
				ɪ.ŋɔi	Kamba
	312 lion	Sw. *simba*	>	*cimba*	Chuka, Embu, Mbeere, Nyeri (+ isolated attestations in Eastern)
			>	*simba*	Murang'a, Ndia, Gichugu
					v e r s u s
				mU.ɲambU	Kamba
				ngatuɲi	Meru etc.
	326 fish	Sw. *samaki*	>	*ðamaki*	Western, Embu, Mbeere (+ *camaki* in some of Eastern)
					v e r s u s
				gɪ.kU(y)U , ɪ.kUyU	most remaining varieties

In sum, while common heritage – or an old connection – seems to be responsible for the relatively low distance between Embu-Mbeere and Western in the field 'Motion', relatively recent mutual borrowing from Swahili and English (as well as unknown donors under the keywords *291 cat* and *292 dog*, cf. example 185 in section 3.2.2) has caused homogenization between the two groups in the field 'Animals'.
The keyword *donkey* in example (281) above shows, moreover, that Maasai influence is an important factor in this field regarding the eastern varieties. Maasai contributed to the distance between Embu-Mbeere and the other eastern varieties, as Embu-Mbeere is less affected by Maasai than the most other eastern dialects, e.g.:

(282)	285 donkey	Ma. *o-síkìrià*	>	*ntigiri*	Meru: Imenti, Nkubu, Miutini; Igoji, Nithi, Tharaka
			>	*ndigiri*	Kiambu (Gikuyu)
					Kamba: unrelated form, all others: Swahili
	331 lizard	Ma. *o-loiruri*	>	*mU.UrU:rU*	Meru: Imenti, Nkubu, Miutini all others: unrelated forms

In sum, 22 out of 44 items have been affected by borrowing processes in the field 'Animals'. In turn, the remaining 22 items may be considered conservative in the entire group – we may assume that they contribute to the general three-way split.
External borrowing has, however, dissolved the lines along which Central Kenya Bantu is divided usually (East, West, Kamba). Swahili and English have most severely impacted Western and Embu-Mbeere; Kamba shows the lowest amount of loans in this field:

Cluster	**West-Embu-Mbeere**	**East**	**Kamba**
Amount of ext. loans	16	13	10
Cushitic	1	1	0
Maasai	1	2	1
Swahili	7	5	3
English	2	0	0
unknown donors	6	5	6

Table 183: Amount of external loans in the field 'Animals'

Table 183 shows the contribution of external borrowing to the particular clustering in the field 'Animals'. The following figure 56 shows the different degrees of external influence on the three clusters West-Embu-Mbeere, East, and Kamba by Cushitic, Maasai, Swahili, and English:

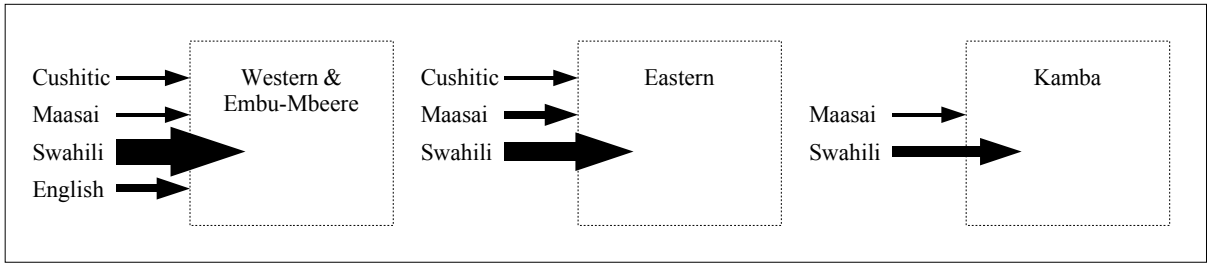


Figure 56: External borrowing in the field 'Animals'

(4.) Law

The field 'Law' (figure 53) shows atypical clustering. Not only do we find unusual groupings, i.e. links between normally distant varieties, such as Mwimbi and Gichugu. Figure 53 also shows that the typical gap between Kamba and Mbeere has been completely bridged in this semantic class.
The qualitative analysis revealed that this is due to two factors: On the one hand, we find massive external borrowing, that has homogenized the entire group. On the other hand, widespread internal lexical diffusion seems to have contributed to the dissolution of the typical dialectal gaps.
In general, i.e. for all semantic domains, one may say that Swahili is the most influential donor in regard to the number of affected items. However, in distributional terms, Swahili loans are generally restricted in the individual semantic fields:
In the case of *107 elder*, for example, only three locations in Gikuyu show the loan *mʊ.ðɛɛ* (< Sw. *mzee*), whereas genuine forms are used in all other locations. English loans, too, mostly show limited distribution: For example, only one speaker of Nyeri-Gikuyu uses the form *paiðɔni* under the keyword *329 python*.

In short, we may find in a specific semantic class that many items are affected by Swahili influence. Regarding distribution, however, most of these loans are usually rather limited. Moreover, internal lexical convergence has never been severe enough in most domains to bridge the gap between Kamba and the remaining varieties.
In the field 'Law', in contrast, borrowing has been very influential in regard to both the number of affected items as well as regional distribution. In total, 20 items are reviewed in this field. More than half of these items, a total of 11 (55%), indicate borrowing.
The keyword *lawsuit*, for instance, shows widespread use of Swahili loans, i.e. from Western and Eastern throughout Kamba:

(283)	175 lawsuit	Sw. *mashtaka*	>	*(i.)ðita:ngɔ* etc.	Western
			>	*ma.ði:tangɔ*	Eastern
			>	*U.sitaka* etc.	Kamba

The keyword *judge*, again, connects varieties that are usually distant to each other, e.g. Embu and Kamba:

(284)	177 judge	Eng. *judge*	>	*njanji*	scattered in Eastern: Igoji (11, 15), Mwimbi (20), Muthambi, Embu, Mbeere, Tharaka
			>	*ndʒangi, tʃatʃi*	Kamba

Next to convergence, based on mutual external borrowing, internal diffusion of genuine Central Kenya Bantu vocabulary has additionally resulted in the homogenization of usually distinct varieties, e.g. Embu and Kamba (downhill borrowing):

(285)		**Mt. Kenya**	**Kamba**
	160 quarrel	*ngarari* (Embu)	> *U.kalalya,* etc.

148 to refuse CB *-dég- C.S. 521 *-rɛga* (Eastern & Western) > *-lɛa*

Montane borrowing, i.e. between the varieties in the vicinity of Mount Kenya, is shown by the following example:

(286)	118 to obey	*-aðıka*	all of Western
		-a:ðɛka	all of Meru (Nkubu, Imenti, Miutini) and Igoji
			+ scattered in Eastern: Mwimbi (18), Muthambi (22-25),
			Chuka (28, 29), Embu (31-34), Mbeere (39), Tharaka (42a, 44)

The form *-a:ðɛka* in (288) above is attested for every location in Meru; in the remaining eastern varieties, it is distributed in a scattered manner, suggesting that Meru is the center of dispersion of this particular form. Western is also a possible donor, e.g. in Embu-Mbeere.
External, downhill, and montane diffusion may also be identified in many other semantic class. In relation to the total amount of items, these borrowing processes are, however, less

significant in all of the other domains – regarding the number of both affected items and varieties.
In the field 'Law', not only are 55 percent of lexical items affected by diffusion, but almost all dialects have borrowed from the same source words. Consequently, borrowing is the main reason[34] behind the unusual clustering of Central Kenya Bantu depicted in this field (figure 53): Massive influence by colonial Swahili, English, and Maasai on the entire group has led to widespread homogenization on the one hand. Internal diffusion of genuine vocabulary decreased lexical variation on the other.
On a final note, the fact that convergence processes have been much stronger in the field 'Law' than in any other semantic domain relates to the history of British expansion in Central Kenya: With the set-up of a colonial regime, judicial matters were laid in the hands of official judges, appointed by the British. During that time, Swahili *mashtaka* ('lawsuit') and English *judge* were introduced. Moreover, vernacular terms were promoted; they seem to have spread from the colonial towns of Nyeri and Meru, respectively. Insofar, the set-up of state institutions may have facilitated the spread of judicial terminology in Central Kenya (see section 4.3.8).

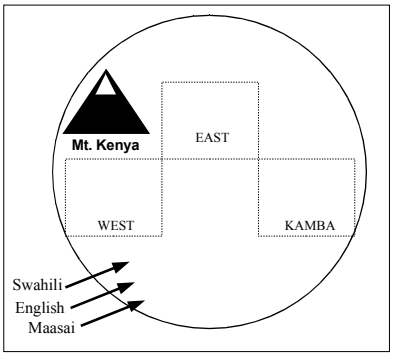


Figure 57: External borrowing in the field 'Law'

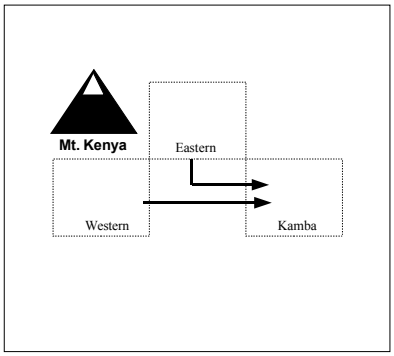


Figure 58: Downhill borrowing in field 'Law'

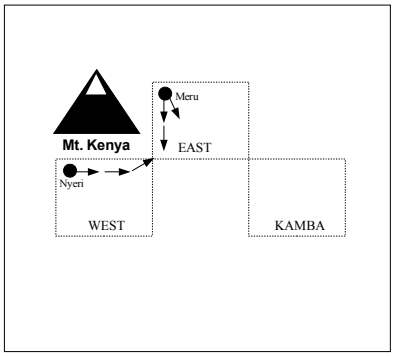


Figure 59: Montane borrowing field 'Law'

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The discussions thus far has made it evident that both inheritance and contact have influenced the synchronic lexical affiliations within Central Kenya Bantu. Kamba is set apart due to divergence; in addition, exclusive language contact with external donors has distanced Kamba from the rest. In Eastern and Western, bundled isoglosses are more difficult to identify – the two groups are, nevertheless, distinct from each other. However, in the field 'Motion', the eastern varieties Embu and Mbeere share some material with their western neighbors; material that can be considered regular and widespread, which suggests a common heritage. In other cases, e.g. 'Animals', mutual borrowing from Swahili has had a leveling effect on Western and Embu-Mbeere, resulting in particularly low variation between the two groups. Nevertheless, the three-way split of Central Kenya Bantu into East, West, and Kamba may be considered to be typical. Only in the fields 'Animals' and 'Law', the typical three-way-divisions are dissolved due to external borrowing as well as internal diffusion.

34 There are also some conceptual issues to be considered, which are discussed in the relevant section *10. Law* above.

3.3 Inheritance in Central Kenya Bantu

The inherited linguistic material identified in the previous sections 3.1.2 and 3.2.2 may be classified along the lines of formal, distributional, and semantic factors. In this section, I discuss how internal language change has led to linguistic divergence between the different dialects. From a formal perspective (section 3.3.1), a certain amount of sound shifts can be observed. Bundled isoglosses are, however, generally difficult to find: A pair of varieties may concur in respect to one specific change, while diverging in regard to another. Nevertheless, Western Kirinyaga and Kamba are set apart from each other as well as the remaining varieties by a multitude of phonetic features and phonological rules (section 3.3.2). The different groups of meanings are reviewed in this section as well (section 3.3.3). It becomes clear that the inherited material can generally be categoriized into archaic forms and more recent shared innovations.

3.3.1 Formal Factors

All varieties dispose of seven vowels *a, ɛ, i, ɪ, ɔ, u,* and *ʊ*. All of these segments occur both as long and short vowels; thus, all Central Kenya Bantu languages dispose of a total of 14 distinct vocalic phonemes. In the dialectometrical analysis of the phoneme systems, however, the treatment of vowels has been disregarded, as there exists no systematic variation in terms of vowel length and quality. In other words, it is impossible to identify any recurrent vocalic sound correspondence, that would, for example, relate the short vowel [ɪ] in dialect A to the long vowel [ɪː] in dialect B. It is, however, evident that internal language change, in some instances, caused specific dialects to diverge in regard to vowel length or quality. In all of these cases, it is important to note, no bundled isoglosses can be found. This is exemplified by the following two cases that demonstrate (a) the concurrence and (b) divergence of the eastern dialects of Imenti and Mwimbi in terms of vowel quality:

(287)	a.	590 black	CB *-yi̱dù C.S. 2037 >	*-iru*	Mwimbi and Imenti
	b.	554 to hear	CB *-yi̱gu̱- C.S. 2043 >	*-iːgwa*	Imenti
				-ɪːgwa	Mwimbi

The case of *to hear* in (287) shows variation in vowel quality. The following example (288), in turn, shows that most dialects dispose of reflexes of the Common Bantu item *-kʉ́m- C.S. 1262 with a long, closed vowel [uː] – except for Kamba, where the short variant [u] is attested. In the Gikuyu dialects of Kiambu and Murang'a, the short, more open vowel [ʊ] is attested:

(288)	083 to come	CB *-kʉ́m- C.S. 1262 >	***-uːma***	Eastern, Western except for
			-ʊma	Kiambu, Murang'a
			-uma	Kamba, Nyeri (99)

Another aspect of formal divergence, that is not taken into account in terms of regular correspondence, concerns the shape of noun class markers in Kamba. For the sake of completeness, this is discussed in the following paragraph.
Descriptions of Kamba (e.g. Lindblom 1926, Whiteley and Muli 1962) distinguish between

consonant- and vowel-initial stems (henceforth, C- and V-stems), affecting the shape of the preceding noun class marker. In class 3, for example, Whiteley and Muli (1962: 15 ff.) list the markers */mʊ-/* (in front of C-stems) and */mw-/* (in front of V-stems). The substition of the open vowel /ʊ/ with the semivowel */w/* is also attested for class 15: */kʊ-/_V > /kw-/*. The class 7 nominal concord */kɪ-/*, in turn, occurs as palatalized */ky-/* when followed by a vowel.
This observation has not been taken into account in the quantitative dialectological analysis of the phoneme systems, as it is not distributed in a regular manner. There seems to be no correspondence between, for example, class 1 */mʊ-/* in Embu-Mbeere and class 1 */mw-/* in certain Kamba dialects. Lindblom (1926: 12) suggests that the palatalization of the class 7 marker */kɪ-/* is typical of the Kamba dialect he calls 'Ulu' (denoting the forested hills in Mumoni). He does, however, admit that this palatalization is also attested in other parts of the Kamba territory. Lindblom even expected this particular kind of change to prevail over the whole Kamba area at some point[35]. Accordingly, the data in this study show that the distinction between C- and V-stems in Kamba does not constitute a dialectal difference, but rather seems to be due to idiolectal variation. In regard to the noun marker of class 3, for example, both */mʊ-/* and */mw-/* are attested throughout the entire language area of Central Kenya Bantu, i.e. */mw-/* is by no means restricted to Kamba. In Kamba, moreover, */kɪ-/* is found both in front of V- and C-stems; class 15 */kʊ-/* and */kw-/* coexist as well:

(289)	001 body	class 3	*mʊ.ɪ:rɪ*	e.g. Embu-Mbeere
			mw.ɪɪ	all of Kamba
			mw.ɪrɪ	all of Gikuyu
	002 head	class 7	***kɪ.ɔngɔ***	e.g. Embu-Mbeere and Kamba
			ky.ɔngɔ	Kamba
	022 arm	class 15	*gʊ.ɔkɔ*	Gikuyu
			kʊ.ɔkɔ	Kamba
			kw.ɔkɔ	Kamba

A difference of the kind described in (289) cannot be evaluated in a specific correspondence series, as, for example, */kw-/* is used sporadically without there being any isogloss that would indicate that this segment is typical of a specific region in Kamba. This variation is, however, taken into account in the quantitative analysis of the lexical data. The two forms *kɪ.ɔngɔ* and *ky.ɔngɔ* listed under the keyword *head* in (289) above, for example, are treated as phonologically divergent in the lexical analysis.
The items in (289) illustrate that no recurrent correspondence series can be set up regarding vowels. Consequently, the systematic assessment of phonological variation concerns consonants only. Section 3.1.1 showed how the the relevant sound correspondence series are established (they are listed in appendix A).
Twelve series show no no variation; it is evident that these series represent inheritance (from Common Bantu). In six cases, however, internal language change reflects some sort of divergence.
I showed in section 3.1.2, that bundled isoglosses are difficult to find. Embu-Mbeere, for example, is set apart from all other dialects in respect to the series $*P_1$, i.e. it is the only variety showing the dental fricative /v/, while Kamba as well as Ndia and Gichugu show the bilabial approximant /β/, and the glottal approximant /ɦ/ is attested for the remaining

35 In this respect, Lindblom seems to have been right in anticipating Kamba to become a rather homogeneous linguistic area in the course of time.

varieties. In regard to the correspondence series *R_1, in contrast, Embu-Mbeere concurs with all of its eastern neighbors, i.e. Eastern Kirinyaga. This series *R_1, moreover, makes it especially clear that the phonetic differences between the different dialects are mostly rather small. In the series *R_1, for example, we find a tap [ɾ] and a flap [ɽ], both distinguished by only one feature [+/-back].
The fact that most segments are so close to each other in phonetic terms poses a problem for the classification of the Central Kenya Bantu languages on the so-called subgroup level. None of the sounds attested in the relevant series seems to be rare in the Bantu family as a whole. In Guthrie's terms, no 'extraneous' sounds are attested, i.e. idiosyncratic segments that would enable the linguist to establish clear cut connections to other Bantu languages in East Africa showing the same unusual sound. Even the reflexion of Common Bantu *p as /ɦ/, which might seem unusual in terms of phonetic sound shifts at a first glance, is attested in a number of Bantu languages (e.g. E.11, F.21 etc.). The reflexion of Common Bantu *d as /r/, again, is highly widespread in Bantu (e.g. E.11., E.13 etc.). Consequently, the sound correspondence series *R_1 seems to provide only a means of internally grouping Central Kenya Bantu (see section 3.3.2). In general, the historical nature of such sound correspondence series may only be unraveled by the classic approach to historical linguistics, i.e. the comparative method. The reader may be referred to Möhlig's (1977) attempt of classifying Savannah-Bantu on the basis of sound correspondences.
The most prominent sound change in Central Kenya Bantu is the process of weakening. Kamba seems to have taken weakening furthest by leniting the Common Bantu segments *g and *d. In the case of Dahl's Law, in contrast, Kamba is the only variety not affected by weakening. In addition, Kamba as well as the western dialects of Gikuyu, Ndia, and Gichugu are set apart from the rest of Central Kenya Bantu by the lack of a number of phonological rules. The fact that the Eastern dialects are the only ones to have developed such rules may be understood as an indication that they constitute the oldest coherent group with the longest period of phonological divergence. The presence or absence of such rules may be classified as formal divergence. Since they are, however, relevant from a distributional point of view, they are discussed in the following section 3.3.2.

3.3.2 Distributional Factors

The two Common Bantu segments *d and *g have been deleted in Kamba, while they are retained in the remaining varieties. Additionally, Kamba is set apart from the rest of Central Kenya Bantu in regard to Dahl's Law. Due to this dissimilation process, *k is weakened in most varieties (i.e. CB *k > /ɣ/) when followed by another voiceless segment (cf. Bennett 1967). In Kamba, in contrast, Common Bantu *k is retained as /k/ in all environments.
Tharaka, in addition, shows one instance of weakening not shared by any other variety of the group. In the correspondence series *K_2, Tharaka shows the voiced velar fricative /ɣ/, attested in three items, while the remaining varieties show retention as /k/. In general, however, Tharaka mostly agrees with its immediate neighbors, i.e. the dialects on the eastern slopes of Mount Kenya. In other words, there is no such gross genealogical gap between Tharaka and its neighbors as it is displayed in the comparison with Kamba and Gikuyu, respectively.
I pointed out above in section 3.3. that Kamba is set apart from the remaining varieties by the lenition of Common Bantu *d and *g (*R_1 > /Ø/ and *G > /Ø/ in Kamba) as well as the absence of Dahl's Law. In respect to the series *G, in turn, the western dialects of Gikuyuy, Gichugu, and Ndia agree with Eastern, i.e. they all have reflected Common Bantu *g as /ɣ/. In this series, however, the eastern Kirinyaga dialects, i.e. from Embu-Mbeere northwards throughout Imenti (including Tharaka), distinguish between the plosive and fricative

realization of *G, depending on the vowel that follows the segment. In Western, in contrast, no such phonological rules exist, i.e. Gikuyu always shows *G > /ɣ/. In Eastern Kirinyaga, a fricative realization as /ɣ/ is only attested in front of the vowels /a, ɛ, ɪ, ɔ, ʊ/. Before /i/ and /u/, in contrast, different phonetic realizations are attested. The relevant series listed in appendix A as well as table 41 in section 3.1.2 provide a full overview of these rules.
In respect to the series *R_1, the same observation made for *G applies: In Western, i.e. Gikuyu, Ndia, and Gichugu, the realization as [ɾ] is attested throughout. In Eastern, in contrast, a distinction is made between *R_1/_/a, ɛ, ɔ, ʊ/, *R_1/_/u/, *R_1/_/i/, and *R_1/_/ɪ/. The following table exemplifies the realization of *R_1 and *G in a selection of Central Kenya Bantu:

	Western	Kamba	Eastern		
Series	**Gikuyu**	**Kamba**	**Embu**	**Miutini**	**Tharaka**
*R_1/_/a, ɛ, ɔ, ʊ/	ɾ	Ø	ɽ	ɽ	ɽ
*R_1/_/u/	ɾ	Ø	ɽ	l	ɽ
*R_1/_/i/	ɾ	Ø	l	l	ɽ
*R_1/_/ɪ/	ɾ	Ø	ɽ	ɽ	ɽ
*G/_/a, ɛ, ɪ, ɔ, ʊ/	ɣ	Ø	ɣ	ɣ	ɣ
*G/_/u/	ɣ	Ø	ɣ	ɣ	g
*G/_/i/	ɣ	Ø	g	g	g

Table 184: Differences in phonological rules in Central Kenya Bantu

Table 184 illustrates two points: First, in the eastern Kirinyaga dialects, it is difficult to identify bundled isoglosses. For example: On the one hand, Embu and Tharaka agree in the realization of *R_1/_/u/; in regard to *R_1/_/i/, on the other hand, Embu concurs with Miutini, both diverging from Tharaka.
Second, table 184 shows that Gikuyu and Kamba, respectively, diverge from the remaining varieties in regard to two aspects: Kamba always shows /Ø/, i.e. it shows lenition throughout, regardless of any phonological rules. Gikuyu is set apart from its eastern neighbors on phonetic and phonological grounds: Not only does Gikuyu show [ɾ], not attested anywhere else in Central Kenya Bantu, but it also does not obey the phonological rules that apply, for example, in Embu and Tharaka.
Kamba and the western dialects of Gikuyu, Ndia, and Gichugu, respectively, are clearly separate from the remaining varieties due to the divergence processes described in table 184. In geographic terms, the language area in the Kenyan Highlands may be divided into three main regions that are distinct from each other on phonological grounds. One the one side, there are the western dialects, situated between the south-western slopes of Mount Kenya and the Aberdares in the west. These comprise all Gikuyu dialects as well as their eastern neighbors Ndia and Gichugu. On the other side of the language area, there is Kamba in the lower plains of Central Kenya, separated from the other dialects by a relatively large genealogical gap. The remaining dialects constitute the third group; they are located in the eastern foothills of Mount Kenya. Embu and Mbeere are, however, somewhat distinct from their neighbors in the east and west due to divergence. This general picture is represented by the outcome of the dialectometrical analysis. The following diagrams in figure 60 and 61 show that the phonological and lexical distances within Central Kenya Bantu, generally, show three major groups, Eastern, Western, and Kamba:

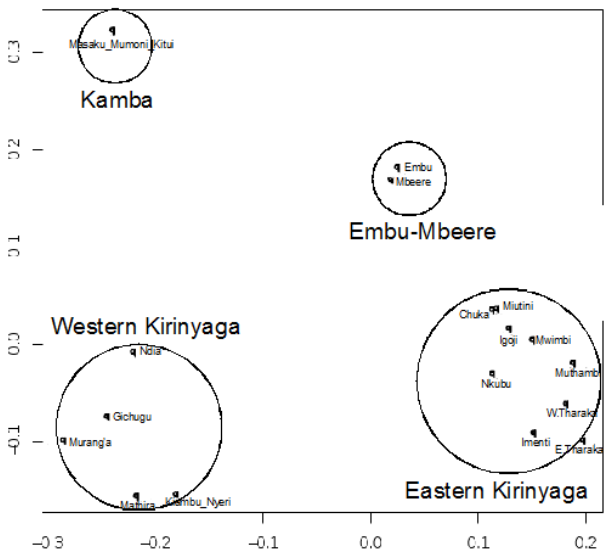


Figure 60: Phonological Distances

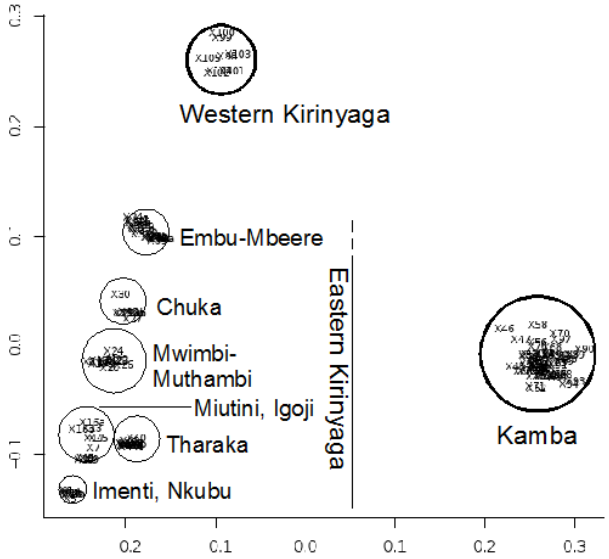


Figure 61: Lexical Distances

In both cases, Embu and Mbeere are situated in relatively large distance to the eastern dialects. Regarding lexical distances, Embu and Mbeere are somewhat intermediate between East and West, i.e. they are just as distant to Western as they are, for example, in relation to Tharaka. They seem to have diverged from Eastern, nevertheless, remaining relatively close. The historical interpretation of these findings are reserved to the final chapter of this study (see section 4.2). However, it may already be stated at this point that the phonological and lexical gap between the different varieties seems to confirm the view found in the oral traditions: According to the myths of origin, the ancestors of today's speech communities in the area around Mount Kenya came to the highlands from different directions.

3.3.3 Semantic Factors

The majority of lexical items attesting to common heritage relate to Common Bantu. Out of 496 entries in the lexical data base, 229 item shows forms cognate to Common Bantu:

1. Sense Perception	6 CB items out of a total of 14 entries
548 smell / 549 to stink	CB *-nụ̀nk- C.S. 1386, *-nụ̀ụ̀k- C.S. 1380
554 to hear	CB *-yígụ̀- C.S. 2043)
556 to see	CB *-bón- C.S. 164)
557 to touch	CB *-kúát- C.S. 1172)
594 sweetness	CB *-dio C.S. 554;
590 black	CB *-yídù C.S. 2037
2. The Human Body	44 CB items out of a total of 71 entries
001 body	CB *-bìdì C.S. 112
002 head	CB *-túè C.S. 1808
003 brain	CB *-bòngó C.S. 169
004 hair of head	CB *-jụ́ídí C.S. 967

005 forehead / 006 face	CB *-cị̀ú C.S. 347
009 chin / 010 beard	CB *-dèdụ̀ C.S. 520)
011 nose	CB *-yúdù C.S. 2151
012 eye	CB *-yíc̀òdị̀ C.S. 2031
014 ear	CB *-kùtú C.S. 1243
015 mouth	CB *-nụ̀à C.S. 1379
016 lip	CB *-dòmò C.S. 651
018 tooth	CB *-gègò C.S. 802
019 throat	CB *-mèdò C.S. 1295
020 neck	CB *-kiɲgò C.S. 1086
021 shoulder	CB *-tʊ̀ʊ́dị̀ C.S. 1862
022 arm	CB *-bókò C.S. 158
023 armpit	CB *-kúàpà C.S. 1171
024 elbow	CB *-kókùdà C.S. 1130
025 left hand	CB *-mócó C.S. 1316
026 right hand	CB *-díó 'food' C.S. 555
027 palm (of hand)	CB *-tádà C.S. 1640
028 finger / 029 fingernail	CB *-yádá C.S. 1893
030 back of body	CB *-gongo C.S. 858
031 ribs	CB *-bàdụ̀ C.S. 30
036 foot, leg	CB *-gùdù C.S. 884
038 heel	CB *-téndé C.S. 1731
040 flesh	CB *-yàmà C.S. 1909
041 bone	CB *-píndí C.S. 1526
042 vein	CB *-kị̀pà C.S. 1087
044 intestines	CB *-dà C.S. 442
045 heart	CB *-kódò C.S. 115
047 to breathe	CB *-pèèp- C.S. 1489
048 liver	CB *-tímà C.S. 1739
049 kidney	CB *-pígo C.S. 1549
050 saliva	CB *-tá C.S. 1629
052 to take a bath	CB *-càmb- C.S. 267
057 to dream	CB *-dóót- C.S. 672
064 to fall ill	CB *-dúád- C.S. 667
066 to shiver	CB *-tètim- 1276
067 to vomit	CB *-tápik- C.S. 1684
068 to cough	CB *-kóód- C.S. 1108
069 wound	CB *-dòndà C.S. 656
070 to swell	CB *-bị́mb- C.S. 144
077 to give birth	CB *-bị́ad- C.S. 136

3. Motion	8 CB items out of a total of 15 entries
081 to leave	CB *-tɟg- C.S. 1746
082 to remain	CB *-kàd- C.S. 974
083 to come from	CB *-kʉ́m- C.S. 1262
084 to come	CB *-yìi- C.S. 2045
085 to arrive	CB *-pɟk- C.S. 1550
095 to send	CB *-túm- C.S. 1831
096 to bring	CB *-déét- C.S. 546
100 to swim	CB *-càmb- C.S. 267
4. The Physical World	20 CB items out of a total of 35 entries
208 well	CB *-cɟmá C.S. 353
426 sun	CB *-júbà C.S. 955
430 moon	CB *-yédɟ C.S. 1964
433 to blow	CB *-pʉ̀ʉ̀p- C.S. 1623
434 cloud	CB *-tʉ̀ C.S. 1855
435 rain	CB *-bʉ́dá C.S. 225
436 to rain	CB *-bʉ́d- p.s. 440
440 land	CB *-cí C.S. 33
442 mountain	CB *-dìmà C.S. 569
443 rock	CB *-pígà C.S. 1548
447 hole	CB *-dìm- C.S. 568
449 river	CB *-yíjì C.S. 2000
450 lake	CB *-dɟbà C.S. 603
452 dust	CB *-kùngú C.S. 1230
453 mud	CB *-tàká C.S. 1649
454 sand	CB *-càngà C.S. 288
455 soil	CB *-càngà C.S. 288
456 path	CB *-jìdà C.S. 940
458 place	CB *-ntù C.S. 1798
585 dirt	CB *-kò C.S. 1093
5. Quantity and Quality	15 CB items out of a total of 31 entries
477 few	CB *-nɟ̀ɲɟ́ C.S. 1362
479 all	CB *-yóncè C.S. 2123
481 to count	CB *-tád- C.S. 1639
482 one	CB *-múé C.S. 1326
483 two	CB *-bìdì C.S. 114
484 three	CB *-tátù C.S. 1689
485 four	CB *-nà C.S. 1335
486 five	CB *-táánò C.S. 1662

487 six	CB *-tándàtú C.S. 1667
490 nine	CB *-kèndá C.S. 1093
510 one hundred	CB *-gànà C.S. 774
512 weight	CB *-dɟtò C.S. 631
518 other	CB *-ngí C.S. 810
574 big	CB *-nénè C.S. 1350
575 small	CB *-nɟ̀ɲɟ̀ C.S. 1362

6. Communication	6 CB items out of a total of 24 entries
136 to call	CB *-yít- C.S. 2017
137 to cry	CB *-dìd- C.S. 561
139 to speak	CB *-néén- C.S. 1346
153 to show /155 to explain	CB *-bón- C.S. 164
172 to curse / 173 to insult	CB *-dʉ̀m- C.S. 741
181 to deny	CB *-dég- C.S. 521

7. Time	4 CB items out of a total of 12 entries
522 time	CB *-píndí C.S. 1572
523 year	CB *-yàkà C.S. 1904
525 day	CB *-tʉ́kù C.S. 1864
529 evening / 532 yesterday	CB *-gòdò C.S. 842

8. Basic Actions, Technology, and Commerce	12 CB items out of a total of 39 entries
098 to seize	CB *-kúát- C.S. 1172
150 to give	CB *-nɟ́nk- C.S. 1363
350 to begin	CB *-yàmb- C.S. 1914
352 to do / 358 to put into	CB *-bíík- C.S. 122
355 to try	CB *-gèd- C.S. 797
357 to push	CB *-tɟ́nd- C.S. 1758
359 to turn, revolve	CB *-pìndud- C.S. 1529
361 to break	CB *-bʉ́ɲj- C.S. 233
365 to mould	CB *-búmb- C.S. 199
373 to buy	CB *-yùd- C.S. 2149
376 debt	CB *-dàndú C.S. 497
377 to pay	CB *-dìp- C.S. 589

9. Animals	23 CB items out of a total of 44 entries
278 cattle / 282 cow	CB *-ŋɔmbɛ C.S. 1402
281 bull	CB *-dúmè C.S. 697
286 goat	CB *-búdɟ̀ C.S. 185
288 pig	CB *-gùdùbè C.S. 888
289 chicken	CB *-kúkú C.S. 1203
310 animal	CB *-yàmà C.S. 1910

311 to bite	CB *-dúm- C.S. 696
315 buffalo	CB *-bògó C.S. 157
316 elephant	CB *-jògụ̀ C.S. 951
320 leopard	CB *-gò C.S. 834
325 rat	CB *-bìbà p.s. 23
330 snake	CB *-jókà C.S. 952
333 frog	CB *-yùdá C.S. 2150
335 bee	CB *-júkì C.S. 962
337 termite	CB *-cúá C.S. 932
338 house fly	CB *-gị̀ C.S. 819
339 mosquito	CB *-bú C.S. 172
340 spider	CB *-bùbì C.S. 17
341 louse	CB *-dá C.S. 446
342 bird	CB *-yúnị̀ C.S. 2170, *-yònị̀ C.S. 2121
345 to fly	CB *-bùduk- p.s. 43
346 guinea fowl	CB *-kángà C.S. 1010
389 egg	CB *-tụ́mbí C.S. 1873

10. Warfare and Hunting

11 CB items out of a total of 23 entries

160 quarrel / 161 to quarrel	CB *-tét- C.S. 1720
166 to fight	CB *-dù- C.S. 675
171 to hide	CB *-pị̀c- C.S. 1546
293 to hunt / 294 hunter /296 arrow	CB *-gụ́ím- C.S. 904
295 bow	CB *-tá C.S. 1631
298 to shoot	CB *-dác- C.S. 449
299 spear	CB *-tụ́mó C.S. 1867, CB *-tụ́mù C.S. 1868
301 to kill	CB *-búd- C.S. 184
302 shield	CB *-gàbò C.S. 756
304 trap	CB *-tégò C.S. 1699
308 to fish	CB *-teg- C.S. 1698

11. Food and Drink

22 CB items out of a total of 48 entries

220 cooking stones	CB *-pị́gà C.S. 1548
221 to cook	CB *-dụ́g- C.S. 734
222 to fry	CB *-kádang- C.S. 982
227 to draw water	CB *-táp- C.S. 1681
229 to pour	CB *-yị̀t- C.S. 2094
234 to cover (a pot)	CB *-kụ́nik- C.S. 1268a
235 to uncover	CB *-kụ́nud- CS 1268b
236 to cut	CB *-tém- C.S. 1703
239 to grind	CB *-cị̀d- C.S. 350
311 to bite	CB *-dúm- C.S. 696

382 to eat	CB *-dí C.S. 550
383 food / 549 sweetness	CB *-díó C.S. 554
384 to swallow	CB *-mèd- C.S. 1294
388 to drink	CB *-nyʉ́- C.S. 1397
389 egg	CB *-tʉ́mbí C.S. 1873
390 honey	CB *-júkì C.S. 962
393 oil	CB *-gʉ́tà C.S. 914
402 yam	CB *-kúá C.S. 1166
405 flour	CB *-tʉ̀ C.S. 1856
407 millet	CB *-bèdé C.S. 70

12. Agriculture and Vegetation 23 CB items out of a total of 50 entries

209 garden / 265 field	CB *-gùndà C.S. 897
236 to cut	CB *-tém- C.S. 1703
266 to cultivate / 267 to dig a hole	CB *-dìm- C.S. 568
270 to plant	CB *-pànd- C.S. 1432
272 to harvest	CB *-kèc- p.s. 287
275 load	CB *-dʲgò C.S. 614
278 cattle / 282 cow	CB *-ŋɔmbɛ C.S. 1402
279 to keep cattle	CB *-dèd- C.S. 310
280 to herd	CB *-dí- C.S. 550
283 to milk	CB *-kám- C.S. 994
286 goat	CB *-búdʲ C.S. 185
288 pig	CB *-gùdùbè C.S. 888
289 chicken	CB *-kúkú C.S. 1203
402 yam	CB *-kúá C.S. 1166
407 millet	CB *-bèdé C.S. 70
440 land	CB *-cí C.S. 330
460 plant / 461 to sprout	CB *-mèd- C.S. 1293
462 tree	CB *-tí C.S. 1729
463 root	CB *-dʲ C.S. 591
466 thorn	CB *-yígà C.S. 1997
468 unripe	CB *-bícì C.S. 102
470 to be rotten	CB *-bòd- C.S. 153
473 pumpkin	CB *-dèngè C.S. 543

13. Social and Political Relations 10 items out of a total of 30 entries

104 person	CB *-ntù C.S. 1798
109 guest, stranger	CB *-gènʲ C.S. 805
113 husband, man	CB *-dúmè C.S. 697
115 wife, woman	CB *-ká C.S. 970
117 to love	CB *-yènd- C.S. 1974

121 child / 132 baby	CB *-yánà C.S. 1922
128 twins	CB *-pácà C.S. 1407
131 barren woman	CB *-kúng- C.S. 1226
133 adult	CB *-gi̱mà C.S. 830
192 to play	CB *-cèk- C.S. 312
14. Law	5 CB items out of a total of 20 entries
118 to obey	CB *-yí̱gu̱- C.S. 2043
160 quarrel / 161 to quarrel	CB *-tét- C.S. 1720
166 to fight	CB *-dù- C.S. 675
181 to deny / 185 to forbid	CB *-dég- C.S. 521
301 to kill	CB *-búd- C.S. 184
15. The House	17 CB items out of a total of 41 entries
196 to build	CB *-yák- C.S. 1903
197 house	CB *-yùmbá C.S. 2168
201 door	CB *-dàngò C.S. 552
207 fence	CB *-bíg- C.S. 118
210 fireplace	CB *-gi̱kò C.S. 828
211 to kindle fire	CB *-pu̱u̱p- C.S. 1632
214 charcoal	CB *-kádà C.S. 980
218 firewood	CB *-kúi̱ C.S. 1181
220 cooking stones	CB *-pí̱gà C.S. 1548
244 mat	CB *-kéká p.s. 290
249 hammer	CB *-dòndò C.S. 706, *-dúndò C.S. 706
251 axe	CB *-còká C.S. 372
254 blunt	CB *-tu̱u̱p- C.S. 1880
259 rope	CB *-dí̱gi̱ C.S. 613
260 knot	CB *-ku̱ndò C.S. 1272
262 to split firewood	CB *-yàt- C.S. 1946
584 clean	CB *-céd- p.s. 85
16. Clothing and Grooming	3 CB items out of a total of 13 items
052 to take a bath	CB *-càmb- C.S. 267
263 to sew	CB *-tu̱m- C.S. 1865
409 clothing	CB *-gùbò C.S. 873

Table 185: Common Bantu heritage in Central Kenya Bantu

In analogy to Haspelmath and Tadmor (2009a), the above list may be rearranged in regard to the amount of attested vocabulary relating to Common Bantu:

#	Semantic Field	Common Bantu material as % of total
1.	The Human Body	62,0
2.	The Physical World	57,1
3.	Motion	53,3
4.	Animals	52,3
5.	Quantity and Quality	48,4
6.	Warfare and Hunting	47,8
7.	Agriculture and Vegetation	46,0
8.	Food and Drink	45,8
9.	Sense Perception	42,9
10.	The House	41,5
11.	Time / Social Relations	33,3
12.	Basic Actions, Technology, and Commerce	31,0
13.	Communication / Law	25,0
14.	Clothing and Grooming	23,1

Table 186: Common Bantu material in Central Kenya Bantu by semantic field

In many aspects, the findings presented in table 186 above, generally agree with the claims on borrowability made by Haspelmath and Tadmor (2009a) for the world's languages. In other instances, table 186 seems to contradict the hierarchy proposed by the loanwords typology project:

The first three fields listed above all show more than 50 percent of lexical material relating to Common Bantu. This confirms for Central Kenya Bantu what Haspelmath and Tadmor (2009a) claim for the world's languages – core vocabulary seems relatively resistant to borrowing. The field 'Animals', in contrast, ranges in the middle of the loanword typology, while it belongs to the upper third in table 186 above.

In Haspelmath and Tadmor (2009a), this field includes a number of very specific animals, such as *kangaroo*, *prawns* or *stingray*, that are common only to certain regions of the world. If eliciting a word like *kangaroo* outside Australia or a noun like *stingray* in a land-locked country, it is quite likely that the answers provided will be loanwords. Möhlig's list used in this study is, in contrast, designed for the African context and intended to be elicited in the Bantu area – the animal names included in the list denote familiar African animals, common in most regions where Bantu languages are spoken. It is, thus, not surprising that more than half of the relevant items in the field 'Animals' originate from Common Bantu.

It is, however, remarkable that the field 'The House' shows such a high amount of inherited material in Central Kenya Bantu, i.e. 41,5%. Cross-linguistically, this field ranges among the top-three of semantic domains especially prone to borrowing (i.e. in the world's languages, this field shows an average of 37,2% of loanwords). This field ranks in the middle of table 186 above, indicating a relatively high amount of common heritage in Central Kenya Bantu. In the next section 3.4, it will become evident that, in addition, the field 'The House' shows a

relatively large number of loanwords in Central Kenya Bantu, i.e. a borrowability rate of 39,3%.
In this regard, the findings of this study agree with the loanword typology project: In addition to a large number of material inherited from Common Bantu, Central Kenya Bantu shows many loanwords in the field 'The House'. In historical terms, this represents the traditional Bantu settlement patterns as well as the introduction of Swahili household commodities to the Kenyan Highlands in fairly recent times.
The position of the field 'Communication' differs from its counterpart (named 'Language and Speech') in the loanword typology in respect to the amount of inherited material. In this study, less than 30 percent of the items subsumed under the label 'Communication' relate to Common Bantu. In the world's languages, in contrast, the field 'Language and Speech' ranks among the more borrowing-resistant semantic domains, showing only 22,3 percent of loans (Tadmor 2009: 64). The items in this study relating to communication are heavily influenced by borrowing from Swahili. The high amount of diffused forms, which seem to have replaced the inherited material, may be the result of local schooling by missionaries and the colonial government (see section 4.3.8).
The fact that the two fields 'Clothing and Grooming' and 'Law' show a relatively small amount of Common Bantu material corresponds to the claim that these domains are generally prone to borrowing. Both fields are typically most affected by intercultural influences and show much recent vocabulary. In the case of clothing, Tadmor (2009: 65) remarks that colonialism and globalization have, for example, contributed to the spread of European garments. Conceivably, in most Bantu languages, no specific concepts like *414 shirt* and *416 trousers* existed in former times. Consequently, it is not unusual that only 23,1 percent of the items subsumed in the field 'Clothing and Grooming' show forms relating to Common Bantu.
Next to the lexical items relating to Common Bantu, there exists a relatively large amount of words that seem to be inherited, suggested by their widespread distribution as well as a generally regular shape. It is true, as Haspelmath (2009: 38) remarks, that we can never exclude that a word is a loan, i.e. that it has been borrowed at some point in the history of a language. However, based on the two parameters of regular shape and widespread distribution, we are safe in assuming that many forms constitute inherited material, even though no connection to Common Bantu can be made.We may consider these forms to be relatively old, i.e. they have been in the relevant languages for a certain period of time and have been passed on from many generations of parents to their children. They are, however, to be kept separate from the Common Bantu material discussed above, as they are non-cognate to any of the forms construed by Guthrie (1967-71). Insofar, we may distinguish between archaic forms inherited from Common Bantu and more recent heritage.
A number of items can be identified that are widespread in all of Central Kenya Bantu as well as regular in shape and, therefore, considered as inherited. As they are not related to Common Bantu, they are marked as non-cognate (n.c.) in the relevant list of attestations in appendix A (attestations of recurrent sound correspondence). The relevant forms are distributed among the different semantic domains as follows:

1. Sense Perception

055 to be tired	*-noga	all of CKB
591 red	*-tuːnɛ	all of CKB

2. The Human Body

033 breasts	*nyonto	all of CKB
046 lungs	*-puri	all of CKB

054 to sneeze	*-acimuda	all of CKB
055 to be tired / 547 fatigue	*-noga	all of CKB

3. Motion

--		

4. The Physical World

431 star	*-jata	all of CKB

5. Quantity and Quality

476 crowd	*-kundi	all of CKB
478 alone	*-ka	all of CKB
511 to measure	*-cima	all of CKB
578 wide	*-ar-	all of CKB
581 light	*-bucu	all of CKB

6. Communication

141 tale	*-gan-	all of CKB

7. Time

526 daytime	*-cen-	all of CKB
527 night	*-tuk-	all of CKB

8. Basic Actions, Technology, and Commerce

102 to throw	*-ik-	all of CKB
353 work	*-wid-	all of CKB

9. Animals

312 fur	*-gu-	all of CKB
337 termite	*-cua	all of CKB
344 wing	*-cagu	all of CKB

10. Warfare and Hunting

163 to beat / 164 to hit, strike	*-pud-	all of CKB

11. Food and Drink

238 to pound	*-kim-	all of CKB
240 mortar	*-tid-	all of CKB
394 banana	*-digu	all of CKB
396 sugar cane	*-gwa	all of CKB
467 fruit	*-tunda	all of CKB

12. Agriculture and Vegetation

394 banana	*-digu	all of CKB
396 sugar cane	*-gwa	all of CKB
467 fruit	*-tunda	all of CKB

13. Social and Political Relations		
--		
14. Law		
176 law	*waco, *wado	all of CKB
15. The House		
212 fire	*-ank-	all of CKB
253 sharp	*-ug-	all of CKB
16. Clothing and Grooming		
419 shoe	*-datu	all of CKB

Table 187: Material inherited by all of Central Kenya Bantu from a common meta-language

All of the forms listed in table 187 are considered inherited based on their regular shape and the fact that they occur in all of Central Kenya Bantu. In each case, every single one of three typical groups – East, West, Kamba – shows the relevant form. In other words, it is possible to construct meta-forms that connect the entire group.
The items in table 187 are considered as stable, i.e. unaffected by borrowing. There is another set of items that are also stable and, most likely, inherited. In these cases, however, it is impossible to connect the entire group under a single meta-form. For example, the following four items unite Eastern and Western, while seperating the two from Kamba:

(290)	**Eastern, Western**	**Kamba**
056 to sleep	*-mam-	*-kom-
437 lightning	*-pen-	*-tis-
140 to tell	*-id-	*-tab-
374 to sell	*-end-	*-ta

All four examples in (291) may be considered stable, i.e. it may be assumed that they are relatively old forms – they show no indication of borrowing in any dialect. They may indicate that Eastern and Western are historically closer to each other than they are in relation to Kamba. This observation is also confirmed by the lexical analysis in section 3.2.1: I showed that it is much more difficult to identify isogloss bundles that separate Eastern and Western than it is to find isoglosses distinguishing Kamba from all remaining varieties. This holds true for both Common Bantu material and such items that may be considered to originate from a later Bantu stratum.
Nevertheless, table 187 shows that a number of inherited items – apart from the Common Bantu heritage – may connect all of Central Kenya Bantu. The fact that items such as *394 banana* and *396 sugar cane* seem to be inherited by the entire group may relate to an old East African cultivation culture. The items *312 fur*, *337 termite*, and *344 wing* may also be interpreted in the same way, i.e. they seem to refer to old concepts as well.
Table 187 also shows that two fields – 'Motion' and 'Social and Political Relations' – show no inherited material that may connect the entire group. This must not be understood as an indication that, apart from Common Bantu material, hardly any widespread inherited items

occur in this domain – this type of material does not connect all of Central Kenya Bantu, i.e. no single meta-forms for the entire group can be constructed.
The field 'Motion', table 186 above shows, contains 53,3 percent of Common Bantu material. All the stable items in this domain relate to Common Bantu. The qualitative analysis of this domain showed that Kamba has been exposed to language contact to a much higher extent (borrowability: 57%) than Eastern and Western (borrowability: 15%). In other words, Kamba seems to have exchanged large parts of its inherited material in this domain. For this reason, apart from Common Bantu heritage, no items can be identified that may be considered stable in the entire group.
In the field 'Social and Political Relations', there is no material that was inherited by the entire group, while being unrelated to Common Bantu. The keyword *to marry*, for example, may still be described as a stable concept in all of Central Kenya Bantu:

(291)	112 to marry	*-gʊrana*	Eastern	< *-gud-
		-ɦik(an)ia	Western	< *-pik-
		-twaa(na)	Kamba	< *-tw-

None of the items in (291) suggest borrowing on formal or distributional grounds. It rather seems that each group – Eastern, Western, Kamba – has inherited their own unique item without ever being exposed to language contact in this instance.
In sum, a number of items may be identified that are inherited by all of Central Kenya Bantu, while being non-cognate to the relevant Common Bantu forms. This suggests that the relevant items are rather old and have been in these languages for a long time. Next to these widespread forms, we also find stable concepts in individual dialects that seem to have been inherited by only a few varieties each. In this context, isoglosses do generally not bundle, which makes it difficult to track down the specific lines of inheritance.

***

In this section, the inherited material has been classified along the lines of formal, distributional, and semantic factors. I showed from a formal and distributional perspective, that a genealogical gap divides Central Kenya Bantu into three major groups: On the one side, there are the western dialects of Gikuyu, Ndia, and Gichugu, opposed to the Kamba dialects on the other side. The remaining dialects constitute a third group called Eastern Kirinyaga.
The semantic analysis confirms the findings presented by Haspelmath and Tadmor (2009a): core vocabulary seems more borrowing-resistant than the cultural lexical inventory. There are, however, some exceptions that may be specific to Central Kenya Bantu, having to do with Swahili influence and the colonial conquest of Kenya as well as with the particular migration history of the region (see section 3.4).
Nevertheless, the domains generally considered to belong to the core vocabulary show the largest amount of forms related to Common Bantu. Additionally, we may identify a number of inherited items on formal and distributional grounds that seem to originate from a more recent Bantu stratum and seem to have been transmitted vertically into the entire group. Next to these items, we may find material inherited only by a limited number of dialects – in these cases, however, there exist hardly any bundled isoglosses.
In short, the lexical material may be divided into archaic forms related to Common Bantu as opposed to more recent items. The historical interpretation of the findings in this section is reserved to chapter 4, preceded by a discussion of diffused material in the following section.

3.4 Contact in Central Kenya Bantu

Congruence between any two language varieties may either be due to universal properties, chance, genetic retention, borrowing or convergent developments (Aikhenvald and Dixon 2001: 1 ff.). Genetic retention was discussed in the previous section. On the following pages, borrowing and convergent developments are reviewed.

Borrowing denotes the synchronic transfer of specific linguistic features from one language to another: Native speakers of one language A come into contact with another language B and start to successively adopt features of language B. In such instances, language A is generally maintained, while its linguistic inventory may be enlarged by borrowing of new material, e.g. lexemes.

In addition, there is another scenario of language contact that needs to be distinguished from plain borrowing – the notion of imposition. In such cases, there exists a specific social situation which facilitates the imposition of features of one language A onto another language B. Next to the term of imposition, this scenario is often described by the terms 'substratum influence' or 'interference through shift' (cf. Thomason and Kaufmann 1988 for a discussion of terminology in this context).

The social background of this kind of language change may be described as follows: Speakers of a language A come to learn another language B and gradually shift to the use of language B. As they are native speakers of a specific language A, they cannot help but retain some of the features typical of their mother tongue. By the retention of these features, these speakers may, under certain circumstances, influence the target language B to such an extent that they cause a number of changes in that language. In Central Kenya, this type of contact-induced change is especially relevant in distributional terms, i.e. it becomes most evident in the context of contact with speakers of Maasai (see section 3.4.2.).

Next to distribution, the contact processes are classified along the lines of formal and semantic factors. From a formal perspective, loanwords may either be integrated into the sound system of a recipient language or they may be modified by the speakers of the recipient language in a process of adaptation:

The two kinds of borrowing – integration versus adaptation – may be best understood in comparing Swahili borrowing in Gikuyu and Kamba: The Swahili word *rahisi* 'cheap' has been borrowed by both Gikuyu and Kamba. In Gikuyu, it occurs as *raiði*, in Kamba as *laisi*. When articulating this word, Gikuyu speakers use inherited segments only, i.e. /r/ and /ð/, which both relate to Common Bantu, as the following example shows:

(292) a. Common Bantu *c > /ð/ in Gikuyu

006 face	CB ***-c**ị́ú C.S. 347	>	*ʊ.**ð**iʊ*	Gikuyu
012 eye	CB *-yį́**c**òdį̀ C.S. 2031	>	*ri.i**ð**ɔ*	Gikuyu

b. Common Bantu *d > /r/ in Gikuyu

016 lip	CB ***-d**òmò C.S. 651	>	*mʊ.**r**ɔmɔ*	Gikuyu
019 throat	CB *-mè**d**ò C.S. 1295	>	*mʊ.mɛ**r**ɔ*	Gikuyu

Example (292) shows that both phonemes /r/ and /ð/ relate to Common Bantu in Gikuyu, i.e. both segments are inherited. In order to pronounce the loanword *raiði*, Gikuyu speakers use only inherited segments – the Swahili word is *integrated* into the Gikuyu sound system.

Kamba speakers, in contrast, use a different strategy when borrowing the same Swahili source word *rahisi*, i.e. adaptation: In contrast to Gikuyu, Kamba speakers have no means of articulating the phoneme /r/, as Common Bantu *d is deleted in Kamba:

(293) Common Bantu *d > /Ø/ in Kamba

019 throat	CB *-mè**d**ò C.S. 1295	>	*mʊ.mɛɔ*	Kamba
028 finger	CB *-yá**d**á C.S. 1893	>	*ky.aa*	Kamba

As Kamba speakers do not dispose of a synchronic segment /r/, they substitute Swahili /r/ with /l/ in an attempt to come as close as possible to the articulation of Swahili /r/, yielding *laisi.* The same holds for the second consonant /s/ in Kamba *laisi*. Again, Kamba speakers have no means of pronouncing Swahili [s]; in an attempt to come as close to the original pronunciation, they substitute the Swahili voiceless alveolar fricative [s] with a voiceless postalveolar fricative [ʂ], hence [laiʂi].
In short, the Swahili loan *raiði* shows **integration** in Gikuyu, i.e. only inherited segments are used in the articulation of this form. The loan *laisi*, in contrast, shows **adaptation** in Kamba; i.e. speakers have introduced new phonemes to their system in attempt to imitate the original pronouncation of Swahili *rahisi*.
This division into two kinds of borrowing processes may, in some cases, enable us to unravel the borrowing direction of certain items (section 3.4.2). We may make claims on the distribution of specific loanwords, that help us shed light on the social conditions that were in place when the particular kind of language contact happened.
An additional classification of borrowed material along the lines of semantic domains provides another means of correlating the linguistic findings with the social history of Central Kenya. As pointed out above in section 3.2.2 on the qualitative analysis of the lexical data, some semantic classes, such as the field 'Law', are especially prone to borrowing. This correlation between general borrowability and certain groups of lexical meanings permits us to show, for example, how colonial policy impacted the social structure and the languages of the different communities in the Kenyan Highlands (see chapter 4).

3.4.1 Formal Factors

I pointed out in section 3.3.1 on the formal factors of linguistic divergence that internal language change may result in the synchronic variation of vowel length and quality. The same holds for external language change, i.e. borrowing. In many cases, the length or quality of a specific vowel are changed as a word is borrowed from one variety into another. There is, however, no evidence that this kind of change happens in any systematic manner. It is impossible to say that, for instance, whenever dialect A borrowed from dialect B, a change in vowel quality occurs. In short, variation in terms of vowel length and quality is random.
This kind of change occurs both in borrowing within Central Kenya Bantu as well as in borrowing from external donors. In parallel borrowing from Swahili, this type of change is observed most frequently. A large number of cases attest to this observation, especially to variation in terms of vowel length. The following examples may suffice to show how external language change affects the (a) quality and (b) length of vowels:

(294)	a.	512 weight	*ᴜ.ritᴜ*	Gikuyu	>	*ᴜ.lit**u***	Kamba
		415 shorts	*suruali*	Swahili	>	*curua:r**ɪ***	Mwimbi
					>	*curua:r**i***	Muthambi
	b.	087 to wait	*-**ɛ**:tɛɛra*	Tharaka	>	*-**ɛ**tɛɛla*	Kamba
		183 oath	*ol-mumáì*	Maasai	>	*m**u**:ma*	Embu
					>	*m**u**ma*	Kamba

Another fact to be mentioned, that is the result of borrowing, is the phenomenon of metathesis, i.e. a sound change altering the order of phonemes in a loanword. In total, however, there are only a few items showing metathesized forms, e.g.:

(295)	100 to swim	*-tᴜβira*	Gikuyu	vs.	*-βᴜtira*	Tharaka
	175 lawsuit	*mashtaka*	Swahili	>	*ᴜ.sitaka*	Kamba
				>	*ᴜ.sikata*	Kamba

In the cases of different vowel length and quality, the distinction between phonological integration versus adaptation proposed above does not apply. In the consonant correspondence series described in section 3.1.2, however, integration and adaptation may very well be distinguished.

The first series to be reviewed in this regard is $*P_2$, which shows a recurrent correspondence of /β/ in all of Central Kenya (with the exception of Embu-Mbeere /v/). In Kamba, Ndia, and Gichugu, the phoneme /β/ is part of the inherited sound system, i.e. it relates Common Bantu *p.

Kamba speakers use this segment, for example, in order to integrate Swahili loanwords showing labials, such as /f/ or /b/ (cf. *-fundisha* 'to teach', *barabara* 'road'). In the remaining varieties, no roots inherited from Common Bantu showing /β/ can be identified. Instead, the Common Bantu segment *b is deleted in these varieties and may, therefore, be ruled out as the source of /β/ in the respective lexical forms (outside Kamba, Ndia, Gichugu).

In most languages, the segment /β/ is found in the morpheme systems, for example in the noun marker of class 8, which is /βi-/ in all dialects from Muthambi northwards to Imenti, including Tharaka (Möhlig 1974a: 97 ff.). For this morpheme, Guthrie constructed two items CB *bi C.S. 2207a and *bị C.S. 2207b. Consequently, the lenition of CB *b in Central Kenya Bantu does not apply to the noun marker of class 8. Möhlig (1974a: 22) points out that in the Eastern Kirinyaga dialects, Common Bantu *-bi corresponds to a constructed common form -BI. In all Gikuyu dialects, however, no segment /β/ is attested in the morpheme system; hence, we may assume that /β/ was first introduced into these dialects by borrowing. In short, it can be stated, that in Gikuyu, /β/ seems to be the result of adaptation, while in Kamba, /β/ belongs to the inherited sound system and is used to integrate the relevant loanwords.

In Chuka, it needs to be mentioned, the segment /β/ is only attested in class 16 /βa-/. In this study, it is impossible to say whether language contact has played a role in regard to the morpheme systems. However, as Möhlig (1974a: 78, 83), points out for Meru and Tharaka, the segment /β/ is only infrequently attested; it occurs mostly in loanwords. In this regard, /β/ might be a foreign phoneme altogether, and the recent acquirement of this segment by adaptation may be assumed for almost all dialects, except for Kamba, Ndia, and Gichugu.

In the case of the correspondence series $*C_1$, adaptation may be assumed as well. It is clear that this series describes horizontal language relations: Not only do we find a relatively large

number of Swahili and Maasai loanwords, but the restricted distribution of all attestations in this series points towards borrowing as well. It is likely, that the Kamba segment /s/ as well as /c/ in the remaining varieties are the result of adaptation, since they seem to be exclusively attested in loanwords. In none of these cases, a regular connection to Common Bantu can be established; inheritance from a more recent stratum is unlikely as well. In other words, /s/ in Kamba and /c/ in the rest of Central Kenya Bantu can not be attributed to a common diaphoneme. Their occurrence rather seems to be the result of phonological borrowing. The high diversity in terms of phonetic realization confirms this view: Parallel borrowing, as it is attested to by a number of Swahili items, for example, generally results in the emergence of many of partially divergent forms. In this series, a total of six different realizations are attested for *C_1/_/a, ɛ, ɪ, ɔ, ʊ/, and even seven distinct realizations for *C_1/_/i, u/.

A high amount of phonetic diversity as a result of borrowing from Swahili is also shown by the series *C_2. In this series, the western varieties Gikuyu, Ndia, and Gichugu all show /ð/, while the remaining varieties concur with the series *C_1 in terms of phonetic realization. As /ð/ is an inherited segment in Gikuyu, derived from Common Bantu *c, I argue that the relevant Swahili loanwords of series *C_2 were integrated into the sound systems of the western dialects. The remaining dialects, in accordance with the argument made for the series *C_1, seem to show adaptation.

In short, this particular series shows both integration (in Western: Gikuyu, Ndia, Gichugu) and adaptation (in the remaining varieties). The fact that Gikuyu, in this series, shows integration, whereas the remaining varieties do not, enables us to deduct claims on the borrowing direction of some Swahili loanwords. This is discussed in 3.4.2 on the distributional aspects of language contact as well as in chapter 4 on the social conditions in place at the time of massive influence by colonial Swahili (section 4.3.6).

A clear case of adaptation is also exhibited in the correspondence series *R_3: With the exception of Kamba, all dialects in this series concur with the series *R_1, i.e. they all show /r/, which relates to Common Bantu *d. This Common Bantu segment, in turn, is realized as /Ø/ in Kamba (lenition). Since Kamba speakers, consequently, have no inherited means of pronouncing [ɾ] or [ɽ], they substitute these sounds with /l/ in a process of adaptation. It is evident that /l/ does only occur in Kamba when borrowing is involved. This holds a) for items originating in the vicinity of Mount Kenya as well as b) for Swahili loans and c) other loanwords, whose unknown donor, presumably, shows the segment /r/:

(296) a. Downhill borrowing into Kamba

082 to remain	*-kara*	Mt. Kenya	>	*-kala*	Kamba
087 to wait	*-ɛ:tɛɛra*	Mt. Kenya	>	*-ɛtɛɛla*	Kamba

b. Swahili borrowing into Kamba

155 to explain	*rahisi*	Swahili	>	*laisi*	Kamba
415 shorts	*suruali*	Swahili	>	*sulualɪ*	Kamba

c. Borrowing from unknown donors into Kamba

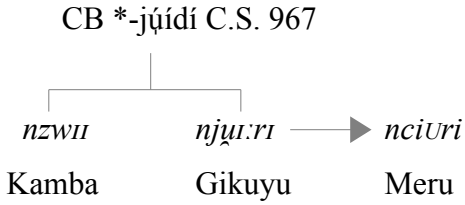
101 to jump		unknown donor	>	*-tʊ(ʊ)lɪla*	Kamba
135 to make noise		unknown donor	>	*-lɔnza*	Kamba

In the context of the two overlapping series *NC_1 and *NJ, the process of integration becomes evident. The two series are identical in the western dialects of Gikuyu, Ndia, and Gichugu as well in Embu-Mbeere and Kamba. The fact that these two series merge in these

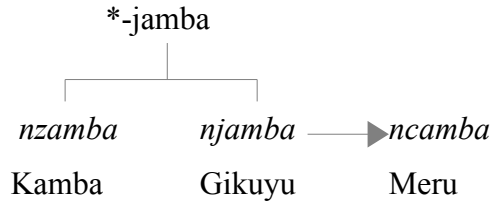
varieties indicates that at least one of them is characterized by contact relations. In the relevant section 3.1.2 on the qualitative phono-dialectological analysis, *NJ was shown to be attested both by inherited and diffused material. As Möhlig (1974a: 80) remarks for Chuka, /nj/ is attested in stems that belong to the core vocabulary and are, generally, widespread in Bantu. The data used in this study show that /nj/ relates to the prenasalization of Common Bantu *j (class 9). Loanwords attested in the series *NJ are, consequently, integrated into the sound systems of the relevant languages, e.g. English *judge* > *njanji* (*177 judge)*, Swahili *kiwanja* > *gɪ.gwanja* (*265 field*).

For *NC_1, in contrast, no regular connection to Common Bantu can be established by the six items that define this series. For this reason and based on the restricted distribution of these items, the correspondence series *NC_1 is considered to be based on contact. This series coincides with the regular series *NJ in Gikuyu, Ndia, Gichugu, Embu-Mbeere, and Kamba. For all these varieties, we may say that the series *NC_1 describes phonological integration. The eastern varieties, i.e. from Chuka throughout Imenti (including Tharaka), incorporate loans in a process of adaptation in this series, e.g. *ncamba*. The fact that an inherited segment, such as [nʒ] in Gikuyu *njamba*, corresponds recurrently to a segment, such as [$n^dʃ$], in Meru *ncamba*, which is the result of adaptation, may be described as linguistic convergence.

(297) a. 004 hair



b. 290 cock



There are two additional cases that indicate convergent processes. However, they seem to defy the classification of integration versus adaptation. The reason why in the series *MP_1 no such decision can be arrived at is the fact that this series is only established by two lexical items, both related to Common Bantu. It is difficult to asses whether borrowing was at play in these instances. However, the fact that this series coincides, in certain dialects, with the series *P_1, *MP_2, and *MB_1 suggests that contact relations are to be considered.

In Guthrie's terms, as pointed out in section 2.3.2, the overlapping of series, generally, indicates multiregional origins of the relevant lexical items. This might also be the case for the two Common Bantu items *-pí̩go C.S. 1549 (*049 kidney*) and *-pépò C.S. 1492 (*569 coldness*), that establish the series *MP_1. As mentioned in section 3.1.2, these two items might have taken different 'routes' into Central Kenya Bantu. Possibly, they have been retained by Gikuyu and Gichugu as *ɦigɔ* (*049 kidney*) and *ɦɛɦɔ* (*569 coldness*), respectively. Aberrant forms, such as *mpɛβɔ* (*569 coldness*), in Tharaka seem to have a different origin. Only the Gikuyu dialects as well as Gichugu show regular forms, while all remaining varieties attest to formal aberrance.

The same holds for the series *MB_1, which shows /ɦ/ in Gikuyu and Gichugu, while Embu-Mbeere shows /mv/, and the remaining varieties have /mb/. All of these segments seem to belong to the inherited phonological inventories. In dialectometrical analysis, two instances of sound correspondence suffice for the determination of recurrence (cf. Möhlig 1986). The fact that recurrent sound correspondences establish the series *MP_1, and also *MB_1, as well as the overlap with other series, might indicate that convergence has played a role here. However, the low amount of data prohibits to make strong claims in this regard.

Consequently, it is difficult to assess whether the series *MP_2 is characterized by integration or adaptation. The series *MP_1, discussed above, shows the realization of /mp/ in dialects such as Tharaka or Imenti. I pointed out, that the historical nature of the relevant items is unclear. Did Imenti, for example, inherit /mp/ from prenasalized Common Bantu *p? The answer, unfortunately, is unclear. In turn, it is impossible to say whether the Imenti word *mpaka* (*291 cat*), that is borrowed from Swahili *paka*, is the result of adaptation or integration. Only if it can be ruled out that /mp/ is, in fact, an inherited segment, we can safely state that adaptation is the case in this series. For Tharaka, at least, Möhlig (1974a: 83) remarks that /mp/ occurs only infrequently and is to be considered a 'foreign' phoneme. In general, as Möhlig (ibid.) points out, some speakers of Tharaka tend to articulate /mp/ in a voiced manner. Consequently, for the difference between /mp/ and /mb/, idiolectal variation cannot be ruled out, rendering the diagnostic value of this series rather small.

3.4.2 Distributional Factors

In regard to distribution, the horizontal language relations identified in this study may be described along the lines of internal and external processes. The former denotes borrowing within the Central Kenya Bantu group, while the latter describes contact with outside donors.
Internal diffusion can be classified into three major directions of language contact that may be described as follows (in order of significance):

(1.) downhill

(2.) uphill

(3.) montane

(1.) Downhill diffusion describes the transfer of linguistic material from the lower slopes of Mount Kenya into the plains of Kamba territory. Considering internal borrowing into Kamba, all of the languages situated closely to Mount Kenya are candidate donors. From a geographic point of view, however, Embu-Mbeere, Tharaka as well as the Gikuyu dialects seem to be the most plausible donor languages.
In some cases, it is impossible to exactly pinpoint the donor languages, as a number of forms that were borrowed by Kamba are widespread in the varieties in the foothills of Mount Kenya. In other cases, however, Gikuyu and Embu-Mbeere can be identified as the donors of specific loans. Often, the uphill varieties have retained certain Common Bantu forms that were not inherited by all of Kamba, but later diffused into the lower plains of Kamba territory via language contact with the uphill dialects, e.g.:

(298) 148 to refuse CB *-dég- C.S. 521

-rɛga Mt. Kenya ⟶ -lɛa Kamba

In a few cases, Tharaka seems to be the donor language of loanwords in Kamba; these instances are, however, much more limited in number than borrowing from Gikuyu and Embu-Mbeere. Exclusive borrowing from the northernmost Eastern Kirinyaga dialects, e.g. the Meru dialects, into Kamba seems negligible. From a geographic perspective, this is not surprising, as Kamba and these varieties are not neighbors.

	Mt. Kenya (Eastern, Western)		Kamba
016 lip	*-rɔmɔ*	>	*-lɔmɔ*
018 tooth	*-gɛgɔ*	>	*yɛːyɔ, yɛːɔ* etc.
026 right (hand)	*ᴜ.rɪɔ*	>	*ᴜ.lyɔ*
029 fingernail	*-kuɲᴜ*	>	*-kuɲᴜ*
039 skin	*rua* (West)	>	*-lua*
059 snoring	*-ŋɔrɔta*	>	*-ŋɔlɔta*
082 to remain	*-kara*	>	*-kala*
087 to wait	*-ɛːtɛɛra / -ɛ(ː)tɛrɛra*	>	*-ɛtɛɛla / -ɛtɛɛlɛla*
090 to squat	*-tuntumara* (Chuka, Embu, Mbeere)	>	*-tᴜndᴜmala*
	-cunjumara (Mbeere)	>	*-sᴜnzᴜmala*
099 to lay down	*-rɛkia nðɪ* (East)	>	*-lɛkia*
	-iːga nðɪ (Chuka, Embu, Mbeere)	>	*-i(y)a (nðɪ)*
118 to obey / 149 to permit	*-ɪ-tɪkɪra, -ɪːtɪkɪria*	>	*-ɪtɪkɪlya*
144 to ask	*-ᴜːria*	>	*-ᴜlya*
148 to refuse / 181 to deny / 185 to forbid	*-rɛga*	>	*-lɛa*
153 to show	*-ɔnɪrɪra* (West)	>	*-ɔnanɛɛlya*
160 to quarrel / 161 quarrel	*nkarari, ngarar*i (Chuka, Embu)	>	*ngalali, ᴜ.kalalya* etc.
	-kara(ra)nia (Chuka, Embu)	>	*- k a l a l a ị a , -kalaị̲a*
168 to chase away	*-rᴜngia* (Tharaka)	>	*-lᴜngia, -lᴜngya*
234 to cover (a pot)	*-kunɪkɪra*	>	*-kunɪkilya*
259 rope	*-rigi* (East)	>	*-lii*
288 pig	*ngᴜrᴜɛ*	>	*ngᴜlᴜ(w)ɛ*
342 bird	*-cɔni* (Embu, Mbeere)	>	*-sɔni, -sᴜni, sɔɲi*
350 to begin	*-ambɪrɪria*	>	*-ambɪlɪlị̲a*
359 to turn, revolve	*-ði(rᴜ)rᴜkia* (West)	>	*-ðyᴜlᴜlᴜk(y)a*
364 to lift	*-kɪrɪria* (Chuka, Embu, Mbeere)	>	*-ᴜkɪlya, -ᴜkɪlia,* etc.
367 to forge	*-tura*	>	*-tula*
383 food	*-riːɔ*	>	*lɪu*
384 to swallow	*-mɛria*	>	*-mɛlya*
386 to belch	*-ɛrᴜːka*	>	*-ɛlᴜka*
403 pepper	*ndᴜrᴜ* (Embu, Mbeere)	>	*ndᴜlᴜ*

450 lake	*-ria*	>	*yɪ.i(y)a*
456 path	*-sɪra, -cɪra* (West)	>	*-sɪla, syɪla*
473 pumpkin	*-rɛngɛ*	>	*-lɛngɛ*
481 to count	*-tara*	>	*-tala*
483 two / 501 twenty	*-(g)ɪrɪ*	>	*-ɪlɪ*
512 weight	*-ritɔ, -ritU*	>	*-litu, -lɛtu*
587 soft	*-ɔrɔrɔ*	>	*-ɔlɔlɔ*

Table 188: Downhill borrowing

(2.) Borrowing from Kamba uphill into the languages located in the vicinity of Mount Kenya is attested in a much smaller number than downhill borrowing. As Kamba is highly homogeneous in regard to the distribution of lexical items, it is difficult to assess which area in the Kamba territory the relevant source words originate from. When considering uphill borrowing, however, the areas in the west of the Kamba area – especially Mumoni – are the regions to most likely have had direct contact with the uphill varieties at an early historical stage.

Genuine Kamba forms have only rarely found their way into the neighboring languages in the west of the Kamba territory. This is insofar remarkable, as Lindblom (1926: 5) regards Kamba to have been an East African lingua franca in the early 20th century. If this had been the case, however, we could expect to find much more attestations of uphill borrowing.

Still, Kamba has had substantial influence on its western neighbors – by mediating Swahili loans. In this sense, Kamba did induce a substantial amount of change in the languages on the lower slopes of Mount Kenya; however, not by providing its own vocabulary, but rather by transmitting coastal loanwords. Genuine Kamba words were only borrowed by the Eastern varieties, while the Western dialects only borrowed Swahili loans via Kamba. In short, Kamba transmitted genuine words to the eastern slopes of Mount Kenya and mediated Swahili loans to both Eastern and Western. The following table lists genuine Kamba terms that were transferred uphill into Eastern:

	Kamba		**Mt. Kenya: Eastern**	
047 to breathe	*-bɛ:ba*	>	*-bɛ:ba*	(Mwimbi, Muthambi, Chuka, Embu, Mbeere, Tharaka)
146 to ask for	*-bɔ:ya*	>	*-bɔ:ya*	(Chuka, Embu, Mbeere)
209 garden	*mU.Unda*	>	*mU.Unda, m.uunda*	(Meru, Igoji, Tharaka)
321 lion	*mU.ŋambU*	>	*mU.ŋambU*	(Mbeere, Tharaka)
322 fruit-bat	*-bubu*	>	*-bu:bu*	(Chuka, Embu, Mbeere)
433 to blow	*-butana*	>	*-butana*	(Tharaka)
522 time	*-binda*	>	*-binda*	(Chuka)

Table 189: Uphill borrowing

(3.) The last direction of internal borrowing to be identified may be described as montane, i.e. contact between the varieties that are situated on the lower slopes in the southwest and east of Mount Kenya.

004 hair	*njʉ:rɪ*	>	*ncUUri, nciUri*	(West > East)
097 to take	*-yU:kia*	>	*-jU:kia*	(Tharaka > Chuka, Meru)
118 to obey / 149 to permit	*-a:ðɛka*	>	*-a:ðɛka*	(Meru > East)
	-aðɪka	>	*-aðɪka*	(West > East)
		>	*-ɪtɪka*	(West > East)
111 marriage	*-ɦiki*	>	*-ɦiki*	(West > East)

Table 190: Montane borrowing

It was not until the establishment of a modern infrastructure that the different communities that are today located in the foothills of Mount Kenya came into close contact with each other on a relatively large scale. Their preferred areas of settlement, the lower mountain ridges of Mount Kenya, are separated by steep valleys, and it may have taken a full day of walking to visit a neighboring village in precolonial times. This geographic separation of the different speech communities of Mount Kenya is represented in the dialectometrical results of the lexical analysis: The eastern varieties are relatively diverse internally. We are safe to assume that language convergence, e.g. montane borrowing between the different eastern dialects, was relatively low prior to the building of roads that nowadays connect the various ridges in the east of Mount Kenya. Before such an infrastructure was developed, only adjacent communities had engaged in social and economic interdependence. For this reason, the eastern dialects are still rather distinct from each other. Only in recent times, after the entire area had come under British rule, did the relevant languages converge on a large scale in terms of lexical similarities, e.g. in the semantic field 'Law'.

Internal borrowing may also have been facilitated by local school teaching. Certain lexical items, such as *111 marriage* or *118 to obey* in the field 'Social and Political Relations', seem to have spread from the towns of Nyeri and Meru, respectively, due to vernacular teaching. In Kamba, the area of Machakos may be considered to be the center of dispersal of standardized lexical items. A full discussion of the influence by local schooling is provided in section 4.3.8 below.

In sum, we may identify three major directions of internal borrowing. Especially downhill borrowing into Kamba has been most severe. Language contact has, however, never been able to bridge the relatively large genealogical gap between these varieties. Except for the field 'Law', in which convergence seems to have been somewhat extreme due to the influences by the colonial regime, the lexical distances between Kamba and the remaining varieties are rather high in most semantic domains.

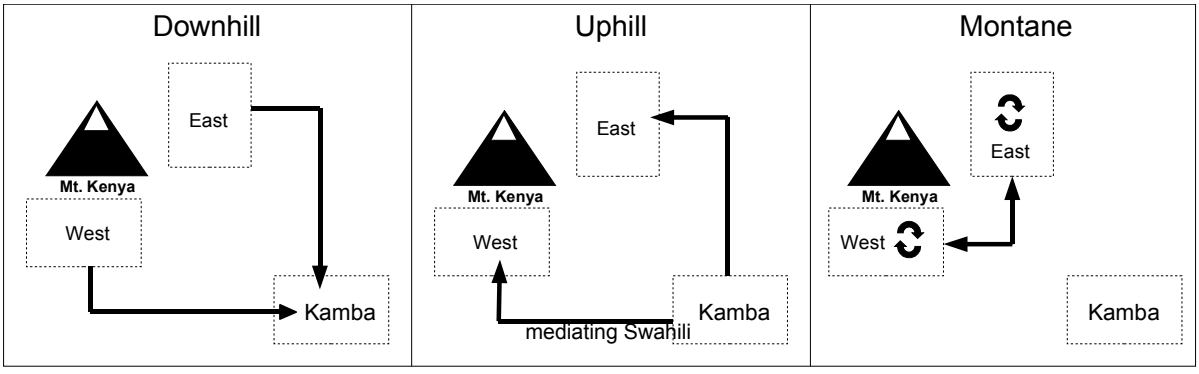


Figure 62: The three major borrowing directions within Central Kenya Bantu

Kamba seems to have been additionally 'pulled' away from its western neighbors due to exclusive borrowing from languages outside Central Kenya Bantu. There is a large number of items in Kamba that show restricted distribution (i.e. they are attested in only a few locations) and unusual shapes, such as the occurrence of /l/. It seems safe to make the assumption that these forms are loanwords, even though we may not identify a relevant source word or a donor language in each case. Nevertheless, Kamba seems to have been exposed to one or more external donors, which never impacted the remaining varieties.

By far the most influential external donor is Swahili. Out of 496 lexical items compared, at least 77 entries show one or more word forms borrowed from Swahili. In many cases, especially nouns denoting commodities or educational and judicial terms, Swahili loans are attested as widespread in all of Central Kenya. Most likely, these items originate from colonial Swahili. Kamba, again, has been most severely affected by contact with Swahili and, to a certain extent, may be described as a center of dispersion of early Swahili words in the entire region.

The distinction between phonological integration and adaptation enables us to unravel the borrowing direction of some of these items. It seems as if Gikuyu came to replace Kamba as the center of dispersion of Swahili items in colonial times. Swahili loanwords showing /s/ or /c/, for example, are borrowed by Kamba with the use of /s/, while the remaining varieties use /c/. In Gikuyu, in contrast, some Swahili words are integrated into the sound system by the use of the dental fricative /ð/. This is attested, for example, by the following words:

(299) a. /c/ and /s/ in Central Kenya Bantu (adaptation)

378 money	Sw. *money*	>	*mbɛːca*	Embu-Mbeere
		>	*mbɛsa*	Kamba
247 bottle	Sw. *chupa*	>	*cuβa*	Gikuyu
		>	*mʊ.cʊː.ba*	Embu-Mbeere
		>	*sʊβa*	Kamba

b. /ð/ (integration) versus /c/ and /s/ in Central Kenya Bantu (adaptation)

379 cheap	Sw. *rahisi*	>	*raiði*	Gikuyu
		>	*raici*	Embu-Mbeere
		>	*laisi*	Kamba
418 stockings	Sw. *soksi*	>	*ðɔːgiði*	Gikuyu
		>	*cɔːgici*	Embu-Mbeere
		>	*sɔkɪsɪ*	Kamba

The examples listed under b) in (299) show that Gikuyu may, in some instances, use the inherited segment /ð/, when borrowing Swahili words that show /s/. The remaining varieties, in contrast, attest to adaptation in these cases. There are, however, a few words that show integration in both Western and Eastern, whereas only Kamba shows adaptation, e.g.:

(300)	157 learn	Sw. *-soma*	>	*-ðɔma*	Gikuyu	(intergration)
			>	*-ðɔːma*	Tharaka	(integration)
			>	*-sɔːma*	Kamba	(adaptation)
	372 market	Sw. *soko*	>	*ðɔkɔ*	Gikuyu	(integration)
			>	*ɪ.ðɔkɔ*	Tharaka	(integration)

The two examples (299) and (300) above attest to different borrowing directions of Swahili words: The examples listed under a) in (299) seem to indicate parallel borrowing or, possibly, diffusion of Swahili loans via Kamba. In example (300), in contrast, Gikuyu, for which the use of /ð/ is typical in the integration of Swahili loans, is the center of dispersion. The semantic profile of all Swahili loanwords showing /ð/ outside Gikuyu (*147 to help*, *156 to teach*, *157 to learn*, *372 market*) suggests that they originate from a colonial context.
Different borrowing directions may imply different origins of the relevant loanwords. The examples listed under b) in (300) constitute so-called "multivalent" forms. Multivalence, according to Guthrie (1967-72) suggests multiregional origins. In the context of Swahili loans in Central Kenya Bantu, this means that different Swahili dialects are to be considered as donors.
For the keyword *hoe*, Möhlig (2014: 5) suggests that Central Kenya Bantu has been exposed to contact with the Lamu and Mombasa dialects of Swahili. The Kamba forms *ɪ.(y)ɛmbɛ* and *y(ɪ).ɛmbɛ* seem to be borrowed from Northern Swahili of the Lamu area (Amu). Mombasa Swahili (Mvita) *dyembe*, according to Möhlig (ibid.), is the source word of items such as *gɪ.cɛmbɛ* and *ɪ.cɛmbɛ*:

(301)	268 hoe	Amu	*(i.)yembe*	>	*ɪ.(y)ɛmbɛ, y(ɪ).ɛmbɛ*	Kamba
		Mvita	*dyembe*	>	*ɪ.cɛmbɛ*	Eastern, Western

In chronological terms, example (301) may indicate that Kamba had early contact with Lamu Swahili, while the remaining varieties borrowed from Mombasa-Swahili at a later historical stage. Different waves of Swahili contact are also shown by the following example (cf. Möhlig 2014: 79):

(302) 225 metal pot

Unguja	*sufuria*	>	*cuburia, ðuburia*	all of CKB
Pokomo	*safuria*	>	*ðapuɾ̨ia, ðaburi(ː)a*	Western, Embu
Amu	*sifilia*	>	*ciriːa, (ɪ).silia ~ silya*	Kamba, Embu, Mbeere

Both of the examples (301) and (302) show a number of divergent forms. In both cases, Möhlig (2014) identified different donors. In the lexical data, however, multivalence or the occurrence of a number of aberrant shapes may not always indicate that different source words are involved. Under the keyword *stockings*, for example, four distinct word forms are found, which all go back to one Swahili item *soksi* (which, obviously, is English in origin):

(303)	418 stockings	Eng. *socks* > Sw. *soksi*	> *sɔksi*	Imenti	(adaptation)
			> *cɔ:gici*	remaining Eastern	(adaptation)
			> *sɔkɪsɪ*	Kamba	(adaptation)
			>*ðɔ:giði*	Western	(integration)

In contrast to the keywords *hoe* (ex. 301) and *metal pot* (ex. 302), all the forms listed in (304) are most likely to go back to Standard Swahili. The diversity within Central Kenya Bantu, in this case, seems to be due the internal dialect structure of the group, i.e. different ways of receiving one source word, rather than external borrowing from different sources.

In the case of *skin*, again, the synchronic differences within Central Kenya Bantu seem to be due to parallel borrowing of one and the same item – rather than multiregional origin. Both Western and Kamba borrowed from Swahili *ngozi* in this instance: Western shows *ngɔði*, one location of Kamba has *ngɔsi*. The western form *ngɔði* shows the inherited segment /ð/ (< CB *c), Kamba uses a loan phoneme /s/. It is most likely that this synchronic difference is due to different ways of borrowing (integration versus adaptation) rather than borrowing from different donors, such as North- vs. South-Swahili.

According to Nurse and Hinnebusch (1993: 680), the northern Swahili dialects Tikuu, Pate, and Amu use the form *ngɔði* with the meaning 'skin' (Standard / Unguja: *ngozi*). It is unlikely, that only Western – most distant to Northern Swahili – borrowed from Lamu *ngɔði*. It seems more plausible that both Western and Kamba borrowed one and the same source word: Standard Swahili *ngozi* > Gikuyu: *ngɔði;* Kamba: *ngozi.*

In short, multivalence may enable us to identify different borrowing directions of Swahili items from an internal perspective – we find different centers of dispersal, Gikuyu vs. Kamba. However, multivalence does not always indicate different source words or donor varieties. It may simply indicate that one and the same item from Swahili has taken different routes into Central Kenya, via Gikuyu or Kamba.

The semantic profile of the Swahili loanwords in our data as well as their distribution may suggest that there are older Swahili loans (most widespread in Kamba) and more recent loans from colonial Swahili (spread via Western).

	Swahili		**Loanword**	**Distribution**
003 brain	*akili*	>	*akiri*	Western
		>	*akili*	Kamba
023 armpit	*kwapa*	>	9 forms	Eastern, Kamba
039 skin	*ngozi*	>	*ngɔði*	Western
		>	*ngɔsi*	Kamba
043 blood	*damu*	>	*ndamu*	Eastern
048 liver	*ini*	>	*ini*	Western
076 medicine	*dawa*	>	*nda(:)wa*	all of CKB
079 to go	*-enda*	>	*-ɛnda*	Kamba
107 elder	*mzee*	>	*mU.ðɛɛ*	Western
134 voice	*sauti*	>	*ðauti*	Western
135 to make noise	*-piga kelele*	>	*-kUna kɛlɛlɛ*	Kamba
138 language	*lugha*	>	*luga*	Western
147 to help	*-saidia*	>	6 forms	all of CKB

155 to explain	*-eleza*	>	*-ɪrɪːca, -ɪrɪːja, -ɪrɪːða*	Eastern
156 to teach		>	*-ɛlɛsɪa, -ɛlɛsi̯a*	Kamba
157 to learn	*-soma*	>	*-ðɔ(ː)ma*	Eastern, Western
		>	*-sɔma*	Kamba
	-fundisha	>	*-ɪ.bᵁndɪ(ʃ)a*	Kamba
175 lawsuit	*mashtaka*	>	17 forms	all of CKB
179 to accuse	*-shtaki*	>	4 forms	all of CKB
184 to command	*-lazimisha*	>	*-lasimiʃa, -laðimiða*	Kamba
	-amuru	>	*-amᵁriða*	Western
		>	*-amᵁlɪða*	Kamba
188 dance	*ngoma*	>	*ngɔma*	Kamba
198 wall	*ukuta*	>	*ᵁ.kᵁta*	Kamba
199 roof	*mabati*	>	*ma.bati*	Western
200 window	*dirisha*	>	4 forms	all of CKB
202 to open	*-fungua*	>	*-bungwa, -bungᵁa*	Western, Kamba
205 room	*chumba*	>	*kɪ.sᵁmba, ky.ᵁmb(w)a*	Kamba
224 to boil	*-chemka*	>	*-camᵁk(i)a, -samᵁk(y)a*	all of CKB
225 metal cooking pot	*sufuria* (Unguja)	>	*cuburia, subulia, ðuburia*	all of CKB
	safuria (Pokomo)	>	*ðapuri̯a, cafuri̯a, ...*	Western, Embu-Mbeere
	sifilia (N-Sw.)	>	*ciriːa, (ɪ).silia ~ silya* etc.	Kamba, Mbeere
226 earthen water pot	*mtungi*	>	*mᵁ.tᵁngi*	Kamba, Western
230 to shake	*-suka*	>	*-ðuk(y)a, -ðukania*	Kamba
246 basket	*kikapu*	>	4 forms	all of CKB
247 bottle	*chupa*	>	8 forms	all of CKB
250 matchet	*panga*	>	4 forms	all of CKB
251 axe	*shoka*	>	*-ðɔka*	Eastern, Kamba
		>	*(-)cɔka*	Eastern
257 lamp	*taa*	>	*ta(ːw)a*	all of CKB
258 mirror	*kio*	>	*kɪ.ɔː(ni)*	Eastern, Kamba
259 rope	*kanda*	>	*-kanda*	all of CKB
265 field	*kiwanja*	>	*kɪ.gwanja*	Mwimbi, Muthambi
		>	*kɪ.wanza*	Kamba
	shamba	>	*samba*	Kamba
267 to dig a hole	*-chimba*	>	*-cimba, -simba*	Western, Kamba
268 hoe	*yembe* (N-Sw.)	>	*ɪ.(y)ɛmbɛ*	Kamba
	dyembe (Mvita)	>	*-cɛmbɛ*	Eastern, Western
284 to churn	*-sukasuka*	>	*-ðuka(ðuka)*	all of CKB
285 donkey	*punda*	>	*mpunda, (m)bunda*	Eastern, Western
291 cat	*paka*	>	*mpaka, mbaka*	Eastern
321 lion	*simba*	>	*cimba, simba*	Eastern, Western

350 to begin	*-anza*	>	*-anja, -anzɪ(ɪ)a*	Western, Kamba
354 to work	*-sukuma*	>	*-ðʊkʊma*	Kamba
	-saidia	>	*-tɛðya*	Kamba
366 to carve	*-chonga*	>	*-sɔnga, -cɔnga, -ðɔngwa*	Western, Kamba
369 to dilute	*-yeyusha*	>	*-yɛyʊk(y)a*	Kamba
370 to paint	*-paka rangi*	>	*-vaka, -ɦaka, -baka*	all of CKB
372 market	*soko*	>	*(-)ðɔkɔ, ðɔkɔ*	Eastern, Western
378 money	*pesa*	>	4 forms	all of CKB
379 cheap	*rahisi*	>	*raici*	Eastern
		>	*raiði*	Western
		>	*laisi*	Kamba
395 orange	*chungwa*	>	*-cungwa, -cunkwa, ...*	all of CKB
399 tomatoe	*nyanya*	>	*ɲaɲa*	all of CKB
403 pepper	*pilipili*	>	*biribiri*	Westren
408 rice	*mchele*	>	*mʊ.cɛːrɛ, mʊ.sɛːrɛ, ...*	all of CKB
409 clothing	*nguo*	>	4 forms	all of CKB
413 hat	*kofia*	>	8 forms	all of CKB
414 shirt	*shati*	>	*ca(:)ti, sa(:)ti*	all of CKB
415 shorts	*suruali*	>	10 forms	all of CKB
415 trousers	*suruali*	>	*ðuruari*	Western
		>	*suluali*	Kamba
417 to iron	*-piga basi*	>	*baci, basi, baði*	all of CKB
418 stockings	*soksi*	>	4 forms	all of CKB
421 to plait	*-suka*	>	*-cuːka*	Eastern
		>	*-suka*	Kamba
441 forest	*msitu*	>	*mʊ.ðitʊ*	Eastern
457 road	*barabara*	>	*barabara, balabala*	all of CKB
473 pumpkin	*boga*	>	*mbɔga*	Western
514 line	*mstari*	>	3 forms	Eastern, Kamba
520 sign	*alama*	>	*arama, alama*	Eastern, Kamba
521 end	*mwisho*	>	4 forms	all of CKB
522 time	*saa*	>	*(ma.)ðaa*	Western
525 day	*siku*	>	*ðikʊ*	Western
542 shame	*aibu*	>	*aibu*	Kamba
555 noise	*kelele*	>	*kɛlɛlɛ*	Kamba
564 to bury	*-zika*	>	*-ðika*	all of CKB
565 grave	*kaburi*	>	*kaburi, kabuli*	all of CKB
567 ghost	*pepo*	>	*pɛpɔ*	Western
	saitan	>	*saitan*	Western
	jini	>	*njini*	Western

570 medicineman	*mganga*	>	*mʊ.ganga*	Western
594 sweetness	*sukari*	>	*ðukari*	Western

Table 191: Swahili borrowing

The lexical influence by Maasai is much lower than the impact of Swahili – Maasai borrowing is only attested to by a total of 20 items. Maasai has, however, affected the Central Kenya Bantu languages in a two-fold way: On the one side, there is the impact on the lexicon, which has most affected the north-eastern slopes of Mount Kenya. Only the items *094 to return*, *183 oath*, *328 crocodile*, and *566 God* show a more widespread distribution beyond the eastern dialects.

In the western dialects of Gikuyu, Ndia, and Gichugu as well as in Embu-Mbeere and Kamba Maasai seems to have had an additional influence on the phoneme systems. In all of these varieties, there exists no voiceless prenasalized stops, resulting in 'phoneme decay' as Möhlig (1974a: 224) puts it. In these varieties, the two correspondence series *NT and *ND merge, decreasing the size of the respective sound systems. The voicing of prenasalized stops is also attested for Maasai.

This particular change, that can be observed in all of the varieties (formerly) adjacent to Maasai territory, but not beyond these dialects, may be due to a Maasai substratum influence. The social conditions that resulted in such a specific type of linguistic convergence are treated in detail in section 4.3.5 by discussing Maasai bilingualism and language attitudes.

	Maasai		**Loanword**	**Distribution**
043 blood	*o-sárgé*	(Tucker and Mpaayei 1955: 284)	> *ðarikɛ*	Meru: Imenti, Nkubu
052 to bathe	*a-él*	(Möhlig 1974a: 118)	> *-ɪːria*	Imenti, Nkubu, Mbeere
			> *-ɪːcɪːria*	Tharaka
073 blister	*a-toyú*	(Möhlig 1974a: 121)	> *gɪ.tɔːɔ, gɪ.tɔːyɔ*	most of Eastern
094 to return / 145 to answer	*a-shúk*	(Tucker & Mpaayei 1955: 304)	> 5 forms	all of CKB
108 friend	*ol-coré*	(Tucker & Mpaayei 1955: 292)	> *mʊ.cɔːrɛ*	Eastern
165 war	*áà-àrà* , *en-árà*	(Möhlig 1974a: 134)	> *mbaara*	Eastern, Western
183 oath	*ol-mumáì*	(Tucker & Mpaayei 1955: 300)	> *muma, muːma*	all of CKB
251 axe	*en-tólú*	(Tucker & Mpaayei 1955: 283)	> *-tʊːru*	Eastern
273 to pluck	see 094 to return		> *-cɔkanɪrɪria*	Western
	a-soló	(Möhlig 1974a: 148)	> *-ðʊrania*	Meru: Imenti, Nkubu
274 to pick up	see 273 to pluck		> *-cɔkanɪrɪria*	Western
285 donkey	*o-síkìrià*	(Tucker & Mpaayei 1955: 289)	> *ntigiri, ndigiri*	Eastern, Western
302 shield	*e-lɔ́ŋɔ́*	(Tucker & Mpaayei 1955: 306)	> *rɔŋɔ*	Eastern
317 giraffe	n.a.	(Möhlig 1974a: 154)	> *rɪŋwa*	Eastern
328 crocodile	*ol-kinyaŋ*	(Tucker & Mpaayei 1955: 287)	> *kɪ.ŋa(ː)ŋi*	all of CKB
380 expensive	*a-gól*	(Tucker & Mpaayei 1955: 249)	> *gɔrɔ*	Eastern, Western
			> *-ʊlʊ*	Kamba

390 honey	*en-áíshó*	(Tucker & Mpaayei 1955: 295)	> *naincU*	Meru: Imenti, Nkubu
435 rain /	*ɛn-kai*	(Tucker & Mpaayei 1955: 242)	> *ngai*	Meru: Imenti, Nkubu
566 God			> *ngai*	all of CKB
533 the past	n.a.	(Möhlig 1974a: 178)	> *kɛŋa*	Meru: Imenti, Nkubu, Miutini

Table 192: Maasai borrowing

English, the colonial language having official status in Kenya until today, has only had a marginal lexical influence. Out of 496 lexical entries, only 14 items show English loanwords. From a distributional perspective, the impact of English is even less significant than influence by Maasai. Except for the item *474 number*, which is widespread as *namba*, all of the English loanwords are highly limited in distribution. In most cases, they occur as isolated forms – Gikuyu being affected most. This may be due to the fact that the Gikuyu data were elicited much later than the remaining data. Most probably, the impact of English has increased in recent years due to the spread of secondary education in Kenya since the 1970s. The concentration of English items in the western highlands may, however, also be the result of the special interest the colonial regime took in the area between Mount Kenya and the Aberdares.

	English		**Loanword**	**Distribution**
090 to squat	*to squat*	>	*-skwɔti*	Western
177 judge	*judge*	>	*njanji*	Eastern, Western
		>	*ndʒangi, tʃatʃi*	Kamba
188 dance	*dance*	>	*ndaci, ndasi*	Western, Kamba
		>	*ndanzi*	Kamba
205 room	*room*	>	*ru:mu, lumu*	all of CKB
207 fence	*fence*	>	*ru.ɪnci*	Tharaka
317 giraffe	*giraffe*	>	*njirabu*	Western
375 to exchange	*to exchange*	>	*-cɪnjania, -sɪnjania*	Eastern, Western
376 debt	*bill*	>	*mbilu*	Kamba
397 mango	*mango*	>	*i.tunda rɪa mangɔ*	Western
459 village	*village*	>	*birɛji*	Western
474 number	*number*	>	*namba*	all of CKB
514 line	*line*	>	*raini, laini*	Western, Kamba
524 week	*week*	>	*wiki*	Western
457 road	*rail*	>	*lɛlu*	Kamba

Table 193: English borrowing

Finally, there are Cushitic loans found in the lexical data base. Surprisingly, Oromo has left no traces at all in the Kamba language, even though Kitui-Kamba borders on the territory of Oromo speakers in the east. A comparison with Heine (1980), Griefenow-Mewis (2001) and, Stroomer (2001) yields no indication of Oromo borrowing. The lack of Oromo loanwords can

be explained by the fact that the Orma, for example, started to settle south of the Tana river only after the arrival of the British. Schlee (1992: 19) attests that the Orma, who live today in the east of the Kamba area, were deported from north of the Tana river by the British in order to prevent raiding by Somali forces. If there has ever been any contact between Orma and Kamba in the relatively dry and scarcely populated plains of south-eastern Central Kenya, it must have been fairly recent and is not reflected in the linguistic data used in this study.
The loanwords listed in table 194 below originate from Southern Cushitic. The possible contact scenarios resulting in borrowing from Cushitic are discussed in section 4.3.3.

	Southern Cushitic		**Loanword**	**Distribution**
024 elbow	*konkoolo	(Ehret 1980: 245)		
	*gongooxi	(Kießling & Mous 2003: 340)	> 10 forms	all of CKB
037 anklebone	see 024 elbow		> 6 forms	Kamba
043 blood	*sakamɛ	(Philippson 2013: 85)	> *(n)ðakamɛ*	all of CKB
051 sweat	*ruˀu, *ruu'u	(Ehret 1980: 221)	> *rU.U(y)a, njUya*	Eastern
103 to fall (?)	*tluk', *tluuk'	(Ehret 1980: 217)	> *-balUka*	Kamba
123 daughter (?)	*ˀal, *ˀaal	(Ehret 1980: 284)	> *mU.a:rɪ, mw.arɪ*	
	Eastern,Western			
131 barren woman	*tsa'ata	(Kießling & Mous 2003: 334)	> *-ða:ta*	
	Eastern,Western			
236 to cut	*tlaaq	(Kießling & Mous 2003: 338)	> *-tila*	Kamba
267 to dig (?)	*fool	(Kießling & Mous 2003: 339)	> *-libula*	Kamba
287 sheep	*gɔndu	(Philippson 2013: 91)	> *ŋɔɔndu*	
	Eastern,Western			
366 to carve	*sup	(Kießling & Mous 2003: 336)	> *-acUbya*	Kamba
			> *-acUɦia, -asUɦia*	Western

Table 194: Cushitic borrowing

3.4.3 Semantic Factors

The semantic profile of a loanword seems to be the most promising level of analysis when it comes to correlating the linguistic findings with the social conditions that facilitated the specific contact situation. Tadmor (2009: 64) shows for the world's languages that core-vocabulary is generally more resistant to borrowing than culture vocabulary:

	SEMANTIC FIELD	LOANWORDS AS % OF TOTAL
1.	Sense perception	11,0
2.	The body	14,2
3.	Motion	17,3
4.	The physical world	19,8
5.	Quantity	20,5
6.	Speech and Language	22,3
7.	Time	23,2
8.	Basic actions and technology	23,8
9.	Animals	25,5
10.	Warfare and hunting	27,9
11.	Food and drink	29,3
12.	Agriculture and vegetation	30,0
13.	Social and political relations	31,0
14.	Law	34,3
15.	The house	37,2
16.	Clothing and grooming	38,6

Table 195: Loanwords in the world's languages (Tadmor 2009: 64)

In Central Kenya Bantu, this claim is only partially true: While some domains that are normally considered to subsume core-vocabulary show a relatively small amount of loanwords, others which also represent core-vocabulary show a relatively high tendency to borrowing. The following table proposes a loanword hierarchy for Central Kenya Bantu and shows the respective amount of loanwords in the world's languages:

	Semantic Domain	Loans in CKB	Loans in the world's languages	Rank in the loanword typology project
1.	The Physical World	15,0%	19,8%	4.
2.	Agriculture and Vegetation	24,7%	30,0%	12.
3.	Time	25,0%	23,2%	7.
4.	The Human Body	25,3%	14,2%	2.
5.	Social and Political Relations	25,7%	31,0%	13.
6.	Warfare and Hunting	27,6%	27,9%	10.
7.	Sense Perception	28,3%	11,0%	1.
8.	Food and Drink	30,0%	29,3%	11.
9.	Quantity and Quality	33,3%	20,5%	5.
10.	Animals	35,7%	25,5%	9.
11.	Communication	36,1%	22,3%	6.
12.	Motion	38,0%	17,3%	3.
13.	The House	39,3%	37,2%	15.
14.	Basic Actions, Technology, and Commerce	43,7%	23,8%	8.
15.	Law	55,0%	34,3%	14.
16.	Clothing and Grooming	64,0%	38,6%	16.

Table 196: Semantic fields reviewed (cf. Tadmor 2009)

(1.) The domain 'The Physical World' shows the least amount of loanwords in Central Kenya Bantu, i.e. only 15 percent. In the world's languages, too, this domain shows relatively few borrowed words and ranks in the lower third of the loanword typology shown above in table 195.
In this field, 35 lexical items were reviewed; 15 out of these items (42%) originate from Common Bantu. Borrowing is relatively low in this field. However, we do find a few cases of internal diffusion, e.g.:

(304)	433 to blow	Kamba	*-butana*	>	*-butana*	Tharaka	(uphill)
	456 path	Western	*-cıra, -sıra*	>	*-sıla, -syıla*	Kamba	(downhill)

In addition, external borrowing from Swahili (e.g. *426 sun*, *441 forest*), Maasai (*425 rain*) and unknown donors is attested. However, borrowing has played a minor role in this field.

(2.) The field 'Agriculture and Vegetation' shows a relatively small amount of borrowing in Central Kenya Bantu (24,7%) as well. For the world's languages, in contrast, this domain ranks in the upper third (30,0%) of the loanword typology. Kamba and Eastern are the two clusters most affected by external borrowing from Swahili, Cushitic and unknown donors. In comparison, the western varieties have been hardly affected by external donors, while internal diffusion is negligible in this field. In total, 44 percent of the items reviewed in this field may

be considered stable in the entire groups; 34 percent, in turn, relate to Common Bantu. Consequently, inheritance is the major factor in this field in Central Kenya Bantu, while borrowing is considerable in the world's languages in regard to agricultural terminology.

(3.) Vocabulary that relates to the semantic class 'Time' seems to be relatively resistant to borrowing in Central Kenya Bantu. In contrast, this field ranks in the middle of the loanword typology. The relatively high amount of loanwords identified by Haspelmath and Tadmor (2009a) may be due to the fact that names for weekdays are included in their list, which are generally prone to borrowing (Haspelmath and Tadmor 2009b).
Kamba seems to have been unaffected by borrowing in this field, Gikuyu shows a few Swahili loans (e.g. *522 time:* Sw. *saa* > *ðaa; 525 day: Sw. siku* > *ðiku*), which are restricted to only a few locations each. We may assume that they were introduced to Gikuyu in colonial times. In short, both in distributional terms as well as in regard to the number of affected items, borrowing has only played a side-role in the domain 'Time'.

(4.) The same holds true for the semantic class 'The Human Body': Both in the world's languages and in Central Kenya Bantu, borrowing is a minor factor in this field.
In Kamba, however, there are ten items relating to the human body that seem to originate from external donor languages. Most of these entries denote specific concepts, such as *005 forehead*, *009 chin*, or *037 anklebone.* I pointed out in section 3.2.2 that some concepts which are rather common in English seem to be only rarely used in the Central Kenya Bantu languages. Some speakers, for example, do not distinguish between the concept of 'ankle' and 'knee'. Possibly, internal and external loans under the keyword *037 anklebone* were introduced into Kamba for communicative exigency.
In all varieties external loans are found under the keyword *blood*. In this case, we may hypothesize that the concept of blood was culturally noteworthy by the time of borrowing from Cushitic, Maasai, and Swahili. The use of genuine Bantu words might have been restricted due to a taboo on the concept. Regarding this item, the Central Kenya Bantu languages disagree with the world's languages: In the loanword typology project, the meaning *blood* is one of the most borrowing-resistant entries (Haspelmath & Tadmor 2009b); in Central Kenya Bantu, in contrast, no genuine Bantu forms are found:

(305)	048 blood	Cush. **sakamɛ*	>	*(n)ðakamɛ*	Eastern, Western, Kamba
		Ma. *o-sárgé*	>	*ðarikɛ*	Imenti, Nkubu
		Sw. *damu*	>	*ndamu*	Eastern

In Central Kenya Bantu, however, the field 'The Human Body', as a whole, is rather resistant to borrowing. Its placement in the lower third of the loanword typology appears justified from the present perspective.

(5.) The domain 'Social and Political Relations' also shows a relatively small amount of loans in Central Kenya Bantu (25,7%). This is insofar surprising as this field ranks among the top candidates of borrowability in the world's languages (cf. table 195).
In Central Kenya Bantu, only few items relate to Common Bantu in this field. Nevertheless, inheritance is the major factor in this domain. The item *to marry* may be understood as a representative example in this case: It shows no indications of borrowing in any variety; rather, each one of the three major clusters – Eastern, Western, and Kamba – seems to have inherited a different word in this instance:

(306)	112 to marry	A	*-gʊrana*	Eastern	< *-gud-
		B	*-twaa(na)*	Kamba	< *-tw-
		C	*-ɦikiɔ, -ɦik(an)ia*	Western	< *-pik-

Some items in this field attest to internal diffusion. For example, we may expect to find the stem *-gʊr-* in Chuka under the keyword *marriage*, i.e. the nominalization of the relevant Eastern Kirinyaga verb in example (306). However, Chuka shows the stem *-ɦik-* under the meaning *marriage*, which is typical of the western dialects. We may conclude that the form *-gʊr -* was transferred into Chuka from the west, possibly due to influence by European missionaries:

(307)		**Western**		**Chuka**
	112 to marry	*-ɦik-*		*-gʊr-*
	111 marriage	*-ɦik-*	→	*-ɦik-* (expected: *-gʊr-*)

Internal borrowing has, however, never been strong enough in this field to bridge the gap between the three major clusters. The same holds for mutual borrowing from external donors, such as Swahili or Cushitic.
In sum, even though the relation to Common Bantu is minor, inheritance is the major factor in this domain. On a side note, the discrepancy between Central Kenya Bantu on the one hand and the world's languages on the other might have to do with the specific set-up of the word list in the loanword typology project: Haspelmath and Tadmor (2009a) list a number of notions relating to the concept of nation, e.g. *country*, *citizen*, *king*, that are not included in Möhlig's list (and generally prone to borrowing in the world's languages according to Haspelmath and Tadmor 2009b).

(6.) The Central Kenya Bantu languages agree with the world's languages in the field 'Warfare and Hunting': The former show 27,6% of loans, the latter show 27,9%. In regard to the respective hierarchies of borrowability, however, there is a discrepancy to be noted: In the loanword typology (table 195), this field ranks in the upper half, whereas it belongs to the lower half in the loanword hierarchy proposed for Central Kenya Bantu in table 196.
Out of 23 reviewed items, nine (39,1%) relate to concepts that are conservative in the entire group; seven items (30,4%) relate to Common Bantu. These numbers suggest that inheritance is the more important factor in this field. This claim holds especially true for Eastern and Western – both groups show only five items each that were affected by borrowing (22,0%). In Kamba, in contrast, nine items (39,1%) have been subject to borrowing, especially from Swahili and unknown donors. In average, however, borrowing is a minor factor in this field. Again, the difference between Central Kenya Bantu and the world's languages in this domain may be the result of discrepancies between Möhlig's list and the one used by Haspelmath and Tadmor (2009a): the latter includes items, such as *army, soldier, gun,* or *fortress*, that are highly likely to be borrowed from a cross-linguistic point of view (Haspelmath and Tadmor 2009b).

(7.) The class 'Sense Perception' shows a large discrepancy between Central Kenya Bantu and the world's languages. Haspelmath and Tadmor (2009a) attest to the fact that words relating to the human senses are a classic part of the core-vocabulary and, therefore, the least likely to be borrowed. Consequently, this domain is highly resistant to borrowing in the world's

languages and shows only eleven percent of borrowed material. Central Kenya Bantu shows an average of 28,3% of loanwords in this field.
All of the relevant items are highly resistant to borrowing in the world's languages. The following table provides an overview of loanwords in the field 'Sense Perception' next to the borrowed score[36] in the world's languages:

Item	Donor	Recipient		Borrowed Score in the world's languages
555 noise	Sw. *kelele*	*kɛlɛlɛ*	Kamba	0.19
	unknown donor	*kɪ.lɔnzɔ*	Kamba	
	unknown donor	*w.aʃa*	Kamba	
587 soft	East, West *-ɔrɔrɔ, mbɔrɔrɔ*	*-ɔlɔlɔ, mbɔlɔlɔ*	Kamba	0.08
549 sweet	Sw. *sukari*	*ðukari*	Gikuyu	0.09
	Ma. *a-isham.isham*	*-cama*	Gikuyu	
557 to touch	unknown donor	*-bʊrʊria*	East	0.10
558 to taste	Ma. *a-isham.isham*	*-cama, -sama*	all of CKB	0.24
592 white	unknown donor	5 forms	all of CKB	0.16

Table 197: Loanwords in the field 'Sense Perception'

(8.) The average of loanwords in the field 'Food and Drink' in Central Kenya Bantu is, again, similar to the outcome in the world's languages – Central Kenya Bantu shows 30,0%, while the world's languages show 29,3% of loans. However, this field ranks in the upper third of the loanword typology (table 195), while it is situated in the middle of the loanword hierarchy proposed for Central Kenya Bantu in table 196. In other words, this field is more resistant to borrowing in Central Kenya than it is from a cross-linguistic perspective.
Out of 44 items reviewed in this field, 20 refer to concepts that may be considered conservative in the entire group. Thirteen items (29,5%) relate to Common Bantu. Next to these items, we find a number of words that seem to originate from a later common meta-language, e.g.

(308) 394 banana *-digu > all of CKB
396 sugar cane *-gwa > all of CKB

In sum, inheritance from Common Bantu and a later common meta-language are important factors in the field 'Food and Drink'. This may relate to an old (East) African culinary culture. Nevertheless, borrowing is significant in this field: Kamba is the most affected variety, especially by borrowing from Swahili and unknown donors. Moreover, mutual Swahili influence has been so extensive in this field that it resulted in a significant decrease of the

36 The borrowed score desribes the likelihood of borrowing (cf. Tadmor 2009: 66). The highest borrowed score of 0.93 is achieved by the item *olive* in the world loanword database (Haspelmath & Tadmor 2009b). A number of borrowing-resistant items, such as pronouns, achieve the score 0.00. Little borrowability is shown by the items *younger sister* (0.01), *to bring* (0.02), and *nose* (0.03). High borrowability is shown by *motor* (0.91), *machine* (0.89), and *coffee* (0.86) In short, borrowability is described by Haspelmath and Tadmor (2009b) in a scale from 1 (highest borrowability) to 0 (lowest borrowability).

lexical distances between the western dialects and the neighboring varieties of Embu, Mbeere, and Chuka. In short, both inheritance and contact are major factors in the field 'Food and Drink'.

(9.) The domain 'Quantity and Quality' shows an average of 33,3% of loans in Central Kenya Bantu. In the loanword typology, this field ranks in the lower third (20,5%) i.e. it shows relative resistance to borrowing from a cross-linguistic point of view.
The reason why Central Kenya Bantu diverges from the world's average in this regard is two-fold: First, external borrowing from Swahili and English has affected different dialects, e.g. in the case of *number* and *end*:

(309)	474 number	Eng. *number*	>	*namba*	all except for Tharaka
	521 end	Sw. *mwisho*	>	*mʊ.iːcɔ*	Embu, Mbeere
			>	*mw.isɔ*	Kamba
			>	*mw.iʃɔ*	Kamba
			>	*mʊ.icɔ*	Gikuyu

The item *number* is relatively prone to borrowing in the world's languages – Haspelmath and Tadmor (2009b) provide the borrowed score of 0.66. The meaning *end*, in contrast, is relatively resistant to borrowing cross-linguistically (borrowed score: 0.10).
Second, internal borrowing contributed to the relatively high amount of loanwords in this field. The following example shows that Kamba borrowed from its uphill neighbors:

(310) 481 to count CB *-tád- C.S. 1639

483 two CB *-bìdì C.S. 114

In sum, borrowing is a major factor in this field: On the one hand, the Central Kenya Bantu languages borrowed from English and Swahili. On the other hand, internal diffusion (downhill borrowing) contributed to the average borrowing rate of 33,3% in the class 'Quantity and Quality'.
(10.) The field 'Animals' ranks in the upper half of both the loanword typology (table 195) and the loanword hierarchy proposed for Central Kenya Bantu (table 196). The qualitative analysis showed that both external and internal borrowing have been extensive in this field.
Especially borrowing from Swahili has had a major influence. The extent of mutual Swahili borrowing has been so great that the usual gap between Embu-Mbeere and its western neighbors is dissolved in this field. In other words, Swahili has had a strong homogenizing effect on Western and Embu-Mbeere in this class, e.g.:

(311) 285 donkey Sw. *punda* > *(m)bunda* Western, Embu, Mbeere
(+ 5 isolated attestations of *mpunda* in Eastern)

312 lion Sw. *simba* > *cimba* Chuka, Embu, Mbeere, Nyeri
(+ isolated attestations in Eastern)
> *simba* Murang'a, Ndia, Gichugu

Kamba, yet again, is the most affected variety in this field, especially by unknown external donors. Furthermore, (a) it borrowed from the languages uphill. In other cases, (b) Kamba is the donor of loans in the languages located in the east of Mount Kenya:

(312) a. Downhill borrowing

288 pig *ngʊrʊɛ* (Mt. Kenya) > *ngʊlʊ(w)ɛ* (Kamba)

b. Uphill borrowing

321 lion *mʊ.ɲambʊ* (Kamba) > *mʊ.ɲambʊ* (Mbeere, Tharaka)

In sum, external borrowing – especially from Swahili, but also from Maasai and Cushitic – as well as internal diffusion are major factors in the field 'Animals'. Example (312a) may reflect the trade of livestock. The Swahili loan for *lion* in (311), in turn, may have been promoted by school education (see section 4.3.8).

(11.) The domain 'Communication', again, shows a relatively large amount of Swahili loans. In the world's languages, the field 'Speech and Language' ranks among the more borrowing-resistant semantic classes. This is plausible at a first glance, as speech and language are part of the human condition, just as sense perception, for example.
In Central Kenya, however, eight out of 22 compared items in this field show Swahili loans. They all denote concepts used in local schools, e.g. *155 to explain*, *156 to teach*, or *159 to write*. These are relatively conservative concepts in the world's languages; in Central Kenya Bantu, in contrast, they are affected by borrowing in most varieties. The following example shows Swahili borrowing next to the borrowed score in the world's languages (Haspelmath & Tadmor 2009b):

(313)

the world's languages		**varieties affected**	**borrowed score in by borrowing**
155 to explain	Sw. *-eleza*	Eastern, Kamba	0.28
156 to teach	Sw. *-somesha*	all of CKB	0.10
157 to learn	Sw. *-soma*	all of CKB	0.26
159 to write	Sw. *-andika*	all of CKB	0.29

All of the four items in (313) are relatively unlikely to be borrowed from a cross-linguistic perspective, as the low borrowed scores indicate. Central Kenya Bantu, in contrast, has been severely affected by borrowing in these cases. This discrepancy between the world's

languages and Central Kenya Bantu seems to be due to the specific history of formal education in the Kenyan Highlands.
For example, there had been no script culture in Central Kenya in former times. As a consequence, all varieties borrowed the Swahili word *-andika* when script was introduced. In addition, the establishment of European schools seems to have caused most dialects to replace genuine forms for the meaning *to teach* (e.g. *-ritana*) with Swahili *-somesha*. A detailed discussion of the impact local schooling has had is provided in section 4.3.8.

(12). 'Motion', again, is part of the human condition. Therefore, words relating to motion may generally be considered to belong to the core-vocabulary. In the loanword typology this field ranks among the more borrowing-resistant semantic classes (17,3%). In Central Kenya Bantu, in contrast, an average of 38,0% of loanwords can be identified.
The reason why Central Kenya Bantu diverges from the world's languages in this respect is due to the fact that Kamba has borrowed extensively in this domain. The other two clusters – Eastern and Western – are, in contrast, hardly affected by borrowing:

Kamba	Eastern	Western	CKB average	World's average
57,0%	15,0%	15,0%	38,0%	17,3%

Table 198: Loanwords in the field 'Motion'

Table 198 shows that only Kamba diverges significantly from the average of loanwords in the world's languages. In five cases, Kamba has borrowed from (unknown) external donors. The following list in (314) shows the relevant items, including the borrowed score in the world's languages (Haspelmath and Tadmor 2009b) – it shows that Kamba has borrowed concepts generally unlikely to be affected by contact in the world's languages:

(314)

		Distribution in Kamba	**borrowed score in the world's languages**
093 to follow	*-bikɪla*	North-Kitui and Mumoni	0.07
095 to send	*-latia*	one location in Masaku	0.13
101 to jump	*-tUUlɪla*	Masaku-East	0.06
	-tUlɪla	relatively widespread	
103 to fall	*-balUka*	all of Kamba	0.05
204 to enter	*-lika*	all of Kamba	0.07

(13.) In the field 'The House', all of Central Kenya Bantu has been severely affected by borrowing. In average, 39,3% of loans can be identified, i.e. this field ranks among the least borrowing-resistant semantic domains. This claim holds both for Central Kenya Bantu and the world's languages.
Again, there is a discrepancy between Kamba and the remaining varieties, i.e. Kamba has been affected by borrowing to a greater extent than Eastern and Western:

Kamba	Eastern	Western	CKB average	World's average
59,0%	32,0%	27,0%	39,3%	37,2%

Table 199: Loanwords in the field 'The House'

The most influential donor in this domain is, yet again, Swahili: 16 out of 41 reviewed items originate from Swahili – in most cases, all varieties are affected. Some Swahili items are found in widespread distribution, for example, under the keywords *247 bottle*, *257 lamp*, and *370 to paint*. Their widespread use and their semantic profile suggest that these items relate to commodities that spread by trade.
We find a number of Swahili items in this field that are restricted to Kamba, e.g. *210 fireplace*, *198 wall*, or *205 room*. Possibly, these words were transferred into Kamba by contact with coastal communities in pre-colonial times. Next to exclusive Swahili borrowing in Kamba (i.e. Swahili loans not attested outside Kamba), there is a number of external loanwords in Kamba, whose donor is unknown.
In sum, both Swahili contact and borrowing from other external donors seem to have contributed to the relatively high amount of loans relating to 'The House' in Kamba. The plains of the Kamba territory were the most easily accessible area prior to the establishment of a modern infrastructure; it is, thus, not surprising that Kamba shows more loanwords than the remaining varieties – both in general and in the field 'The House' in particular. Borrowing from Swahili may, however, be considered significant for the entire group in this domain.

(14.) The semantic class 'Basic Actions, Technology, and Commerce' is the first domain to reach the 40 percent benchmark, ranking among the top-three fields in regard to borrowability. In the relevant section of chapter 3.2.2, I discussed that a number of items are included in this field that are subsumed under the domain 'Possession' by Haspelmath and Tadmor (2009a). For this reason, the field 'Basic Actions, Technology, and Commerce' shows a higher percentage of loans (43,7%) than the domain 'Basic Actions and Technology' in the loanword typology (23,8%).
In Central Kenya Bantu, inheritance from Common Bantu plays a minor role in this field. In regard to contact, Kamba has, yet again, been affected most severely – it shows almost twice as many loans as the remaining varieties:

Kamba	Eastern	Western	CKB average	World's average
61,0%	36,0%	34,0%	43,7%	23,8%

Table 200: Loanwords in the field 'Basic Actions, Technology, and Commerce'

There is a number of Swahili items that appear all over Central Kenya Bantu. They seem to be connected to trading relations with the coast, e.g.:

(315)	076 medicine	Sw. *dawa*	> *ndaːwa, ndawa*	all of CKB
	378 money	Sw. *pesa*	> *mbɛːca, mbɛːsa, mbɛca* ...	all of CKB
	379 cheap	Sw. *rahisi*	> *raiði, laiði*	all of CKB

Kamba shows a relatively large amount of additional Swahili forms that relate to basic and specific actions, most commonly associated with handcraft. These concepts have been unaffected by borrowing in the remaining varieties. In the world's languages, these meaning are also generally resistant to borrowing (Haspelmath and Tadmor 2009b), e.g.:

(316)

				borrowed score in the world's languages
357 to push	Sw. *-sukuma*	> *-sʊkuma*	Kamba	0.17
361 to break	Sw. *-vunja*	> *-bunz(i)a*	Kamba	0.07
359 to turn	Sw. *-zunguka*	> *-sunguka*	Kamba	0.15

Swahili is clearly the most influential donor in this field (Cushitic, English, and Maasai have left only a few traces in this domain). Internal diffusion – in this case: downhill borrowing into Kamba – has contributed to the relatively large amount of borrowed material identified in this semantic class, e.g.:

(317)

	Mt. Kenya		**Kamba**
090 to squat	*-cunjumara* (Mbeere)	borrowed as	*-sʊnzʊmala*
	-tuntumara (Chuka, Embu)	borrowed as	*-tʊndʊmala*
	-ðuntumara (Tharaka)	borrowed as	*-tʊndʊmala*
099 to lay down	*-rɛkia*	borrowed as	*-lɛkia*
367 to forge	*-tura*	borrowed as	*-tula*

In sum, borrowing is the major factor in the field 'Basic Actions, Technology, and Commerce'. All varieties have been affected by Swahili in regard to trading terminology and nouns referring to commodities. Kamba is the most affected variety of all: Not only have Kamba speakers adopted more coastal loans than all others have, including a number of terms for basic actions. Kamba has also borrowed from unknown donors that never impacted the remaining varieties. In addition, a number of lexical items seem to have diffused from the slopes of Mount Kenya into Kamba territory.

(15.) The field 'Law' is especially prone to borrowing in Central Kenya; it shows an average of 55,0% of loans and is only outnumbered by the field 'Clothing and Grooming'. In the loanword typology, too, this domain is among the least borrowing-resistant classes of all (cf. table 195).

Swahili is the major donor in this field. The statistical outcome in the domain 'Law' (see section 3.2.2) even showed that homogenization due to borrowing has had a leveling effect on the entire group – in contrast to the geographically restricted use of loans in most other fields. The usual gap between Kamba and Embu, for example, has been completely bridged in this domain.

The item *lawsuit* may be considered as being representative of the contact situation that characterizes Central Kenya Bantu in regard to judicial vocabulary: Prior to the establishment of an official legal system by the British, any type of dispute used to be settled by local councils comprising the elder men of a particular family or clan. When official courts were set up by the colonial government, the traditional way of handling legal disputes ceased to exist. With this circumstance came along the introduction of judicial terminology. The genuine form *ɪ.gamba*, denoting the concept of 'discussion, palaver', for example, was replaced in most dialects by the Swahili word *mashtaka* 'lawsuit'. The vernacular term for *judge* (*mʊ.gambi*) was, in turn, substituted with the English word:

(318)	175 lawsuit	Sw. *mashtaka*	>	*ma.ði:tanga*	Embu
			>	*ma.ði:tangɔ*	scattered in all of Eastern
			>	*(i.)ðita:ngɔ* etc.	Western
			>	*ᴜ.sitaka* etc.	Kamba
			>	*kᴜ.sikata* etc.	Kamba
	177 judge	Eng. *judge*	>	*njanji*	scattered in Eastern
			>	*ndʒangi, tʃatʃi*	Kamba

It seems as if the influence by Swahili and English is especially great in this domain due to the fact that the spread of loans was facilitated by state institutions. In all other domains, the genealogical gap between Kamba and its uphill neighbors remains, even when extensive diffusion occurred. In the field 'Law', in contrast, the introduction of official terms seems to have had a homogenizing effect on the entire group. In most other domains homogenization mostly affected adjacent dialects only.
In addition to the introduction of external loans, the set-up of an official legal system seems to have contributed to the spread of genuine words. The item *to refuse*, for example, is generally borrowing-resistant in the world's languages, its borrowed score is 0.20 (Haspelmath and Tadmor 2009b). In Kamba, in contrast, the relevant item was borrowed from the languages uphill, which contributed to the decrease of the lexical distances within Central Kenya Bantu:

(319) 148 to refuse CB *-dég- C.S. 521

Montane borrowing, in turn, seems to have had a leveling effect in Eastern and Western. Again, we may assume that the spread of the relevant forms was due to the intervention by colonial administrators and missionaries. In the following case of *to obey,* Möhlig (1974a: 127) argues, local schooling contributed to lexical diffusion from Meru town into the rural parts of Eastern – in the world's languages, on a side note, the item *to obey* is unlikely to be borrowed (borrowed score: 0.11)

(320)	118 to obey	*-a:ðɛka*	all of Meru (Nkubu, Imenti, Miutini) and Igoji + scattered in Eastern: Mwimbi (18), Muthambi (22-25), Chuka (28, 29), Embu (31-34), Mbeere (39), Tharaka (42a, 44)

In sum, the following borrowing processes seem to have contributed to the high amount of loanwords in the field 'Law': Mutual borrowing from Swahili and English in all of Central Kenya Bantu, downhill borrowing from Eastern and Western into Kamba, and montane borrowing within Eastern and Western.

(16.) The final semantic domain 'Clothing and Grooming' shows the highest amount of loans (64,0%) in this study. In Haspelmath and Tadmor (2009a), it is only outnumbered by the field 'Religion and Belief', which is not included here for the lack of data. In short, Central Kenya Bantu agrees with the worldwide trend of borrowability in this field, i.e. terms relating to clothing and grooming are highly likely to be borrowed.

In total, twelve lexical items are reviewed in this field. Only three concepts are unaffected by borrowing in the entire group:

(321)	409 clothing	CB *-gùbò C.S. 873	>	all of CKB
	410 to wear	CB *-bíík- C.S. 122	>	all of CKB
	419 shoe	*-datu	>	all of CKB

The most important factor in this field is borrowing from Swahili. In this regard, Tadmor's (2009: 65) general statement that globalization has contributed to the spread of European garments, which had been unknown in many places prior to colonialism, is also true for Central Kenya. In this case, the colonial language Swahili affected Central Kenya Bantu most severely. The following examples may suffice to illustrate this; it also shows that the relevant concepts are generally prone to borrowing in the world's languages (Haspelmath and Tadmor 2009b):

(322)

			borrowed score in the world's languages
413 hat	Sw. *kofia*	> 8 forms in all of CKB	0.49
414 shirt	Sw. *shati*	> 2 forms in all of CKB	0.51
418 stockings	Sw. *soksi*	> 3 forms in all of CKB	0.68

***

In sum, the analysis along the lines of semantic classes reveals that, in some cases, Central Kenya Bantu agrees with the average of the world's languages. The claim that core-vocabulary is relatively unlikely to be borrowed may be partially confirmed from the present perspective. For example, the domain 'The Physical World' shows relatively few loanwords both in the world's languages and in Central Kenya Bantu. The field 'Clothing and Grooming', in contrast, is especially prone to borrowing; again, this holds true for the world's languages in general and Central Kenya Bantu in particular.

However, the qualitative analysis also shows that specifications can be made for Central Kenya. From a cross-linguistic point of view, the field 'Communication', for example, may be expected to show only few loanwords. In Central Kenya Bantu, however, we find a relatively large amount of loanwords that refer to concepts generally known to be borrowing-resistant. In this case, the specific history of the Kenyan Highlands may explain why the local languages disagree with the world's average: The set-up of missionary schools, for example, seems to have facilitated the spread of Swahili loans for educational concepts, e.g. *to explain* or *to teach*, for which the world's languages normally use genuine forms (Haspelmath and Tadmor 2009b).

In short, the specific historical circumstances in the Kenyan Highlands seem to have caused the Central Kenya Bantu languages to partially diverge from the world's average when it comes to the borrowability of certain lexical items and different semantic classes. There is a number of historical conclusions we may deduct from the linguistic findings by correlating them with extra-linguistic evidence in the following chapter.

4. Conclusions

In the introductory chapter of this study as well as in section 2.4, I addressed the question how linguistic findings relate to the social history of a speech community. In the previous sections 3.1.2 and 3.2.2, the empirical language data were subject to a qualitative analysis in order to distinguish linguistic inheritance from language contact. In a second step (sections 3.3 and 3.4), both genetic inheritance and language contact were classified along the lines of formal, distributional, and semantic factors. These parameters, in a final step, enable us to correlate the linguistic findings with historical accounts. The basis of these historical records, as pointed out in chapter 1, are mostly narratives from local oral traditions. In this section, a number of scenarios are presented that show how specific events in the history of Central Kenya are reflected in the languages and dialects we encounter today. Thereby, this research, in conclusion, contributes to the historical study Central Kenya from a linguistic perspective.
This chapter is structured as follows: Section 4.1 provides a summary of the quantitative analysis, i.e. a synchronic assessment of the linguistic similarities within Central Kenya Bantu. In section 4.2, in turn, diachronic aspects are reviewed: I discuss how the genealogical affiliations of the different varieties relate to the history of immigration into the Kenyan Highlands. The various contact relations identified in this study are reviewed and a number of possible contact scenarios are discussed in section 4.3. Finally, section 4.4 provides a summary of the findings.

4.1 The Dialectal Relations within Central Kenya Bantu

The quantitative analysis (sections 3.1.1 and 3.2.1) showed that Central Kenya Bantu may synchronically be divided into three major clusters – both on the phonological and the lexical level. I named these clusters 'Western Kirinyaga', 'Eastern Kirinyaga', and 'Kamba'.

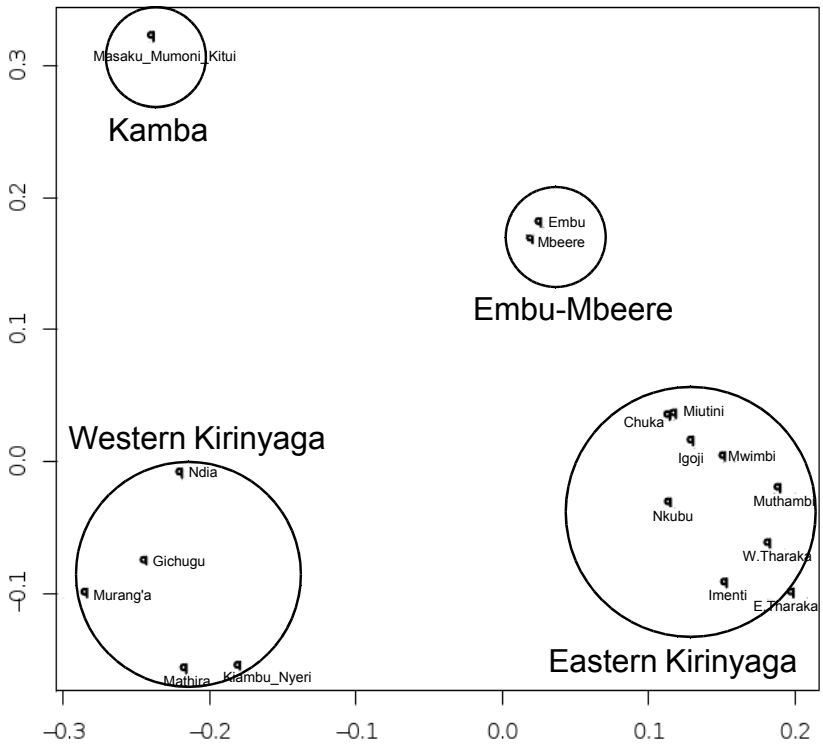


Figure 63: Phonological distances

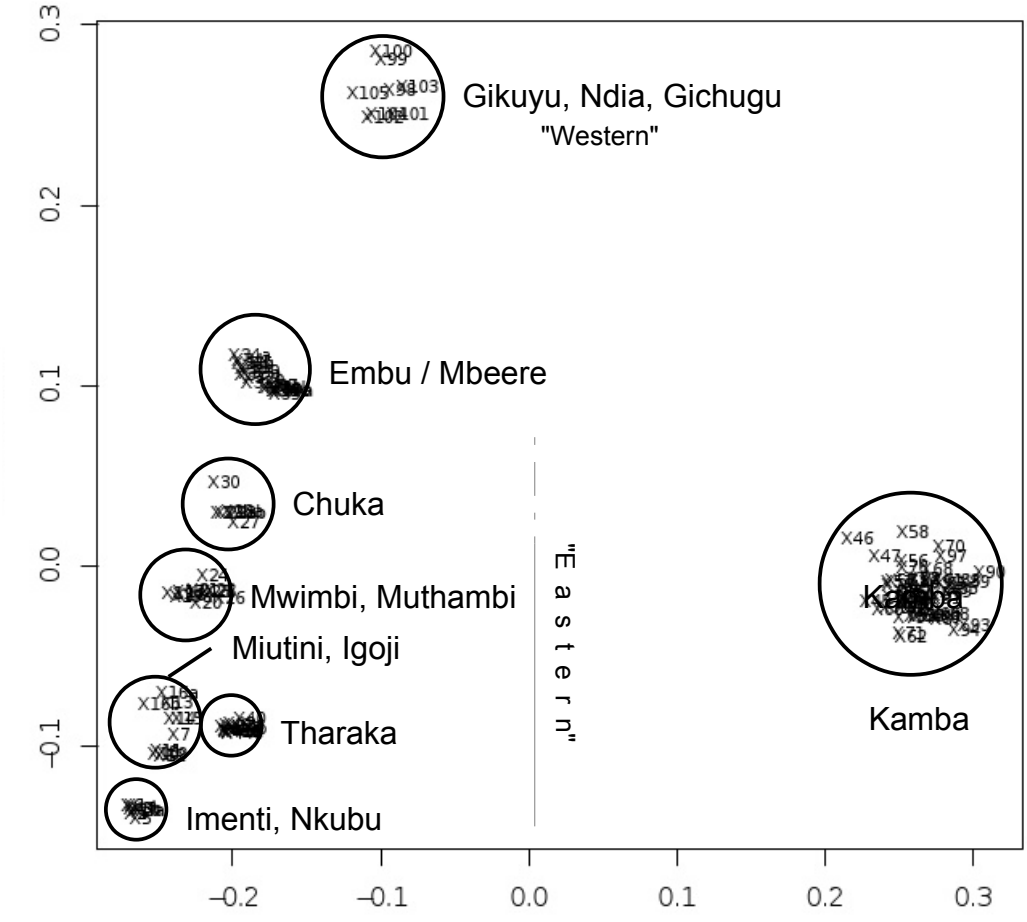


Figure 64: Lexical Distances

Both of the above figures 63 and 64 show a three-way split into Eastern, Western, and Kamba. Embu-Mbeere may be described as a peripheral member of the eastern cluster: Especially on the phonological level, Embu and Mbeere are distinguished from the remaining eastern varieties. This seems to be due to divergence (see section 4.2). Nevertheless, Embu-Mbeere may be considered part of Eastern Kirinyaga – both phonologically and lexically – as it is most closely affiliated with these varieties.

The three-way division makes it evident that the whole of Central Kenya Bantu is not a dialect continuum but rather a conglomerate of three major clusters. If the whole group did, in fact, constitute a dialect continuum, we could expect the linguistic distances between the three major clusters to be much lower in the overall results. Chambers and Trudgill (1998: 5) define a geographical dialect continuum as follows: "At no point is there a complete break such that geographically adjacent dialects are not mutually intelligible, but the cumulative effect of the linguistic differences will be such that the greater the geographical separation, the greater the difficulty of comprehension."

Such a 'complete break' is, however, found between Embu-Mbeere and its immediate western neighbors as well as between Western and Kamba and so on. Therefore, the term dialect continuum applied to the entire group seems inappropriate.

It is true that bundled isoglosses are generally difficult to identify in Central Kenya Bantu, which is typical of a dialect continuum (ibid.). However, in a classic continuum, dialectal boundaries tend to be generally fuzzy, which in overall is not the case here on the highest level of abstraction. On the contrary: The dialectal gaps that divide the three major clusters become quite obvious in the multidimensional scaling.

In contrast, on the lower level of analysis, i.e. if we take a look at the individual clusters, the term 'dialect continuum' may be appropriate. This is most obvious in Eastern Kirinyaga: This group comprises all varieties from Embu-Mbeere in the southeast of Mount Kenya to Imenti in the northeast, including Tharaka. Figure 64 above shows that the lexical distances between Embu-Mbeere and Imenti are relatively high: The lexical distance between Embu-Mbeere and Imenti is approximately the same as between Embu-Mbeere and Gikuyu. This also holds true for the phonological distances shown in figure 63. The phono-dialectometrical analysis (see matrix 3 in section 3.1.1) shows that Embu shares 62 percent of its phonological features with Kiambu-Gikuyu – the comparison between Embu and Imenti yields 65 percent.

Nevertheless, Embu and Mbeere are considered to be part of the Eastern cluster. While being considerably distant to the northernmost varieties like Imenti, Embu-Mbeere connects to Imenti through a chain of closely affiliated dialects (i.e. all the intermediate dialects on the eastern slopes). Insofar, the definition of a dialect continuum by Chambers and Trudgill (1998: 5) cited above is in line with the picture of Eastern Kirinyaga presented here. The same may also hold for the western varieties, even though the picture is not quite as clear in this case (which may partially be due to the low amount of data available for Gikuyu, Ndia, and Gichugu).

Kamba is the most homogeneous cluster in regard to the lexicon and, foremost, in respect to phonology. In this cluster, bundled isoglosses are especially hard to identify. Figure 63 shows that all of three Kamba dialects – Masaku, Mumoni, and Kitui – are identical phonologically. From the perspective on Central Kenya Bantu as a whole, Kamba shows the lowest amount of phonological and lexical variation.

It is, therefore, difficult to come up with a dialectal division of this cluster from the present point of view. The reader may be referred to Möhlig (2014), who distinguishes between the major dialect centers Masaku, Mumoni, and Kitui versus the secondary centers Yatta, North-, East-, and South-Kitui. Möhlig (ibid.) takes a dialectological perspective on Kamba alone and is, consequently, able to work out a more elaborate dialectal division of Kamba than this study is able to provide from a wider focal point. In other words, in relation to the linguistic distances within all of Central Kenya Bantu, Kamba is the least heterogeneous cluster of all – most of the dialectal variation within Kamba seems too low to present itself in a dialectometrical analysis of Central Kenya Bantu as a whole.

The quantitative analysis enables us to propose a synchronic classification: Central Kenya Bantu is divided into three major clusters Western Kirinyaga, Eastern Kirinyaga, and Kamba. The term 'Western Kirinyaga' refers to the fact that the relevant varieties lie in the westernmost part of the language area. These are the four Gikuyu dialects Kiambu, Murang'a, Nyeri, and Mathira, situated in the southwest of Mount Kenya. Next to Gikuyu, there are the two varieties Ndia and Gichugu (in the immediate south of the mountain), which are highly similar to Gikuyu, however, slightly different both phonologically and lexically.

The Eastern Kirinyaga varieties comprise all dialects from Embu-Mbeere in the southeast of Mount Kenya to Imenti in the northeast, including Tharaka. Embu-Mbeere and Imenti are connected by a chain of similar dialects: Chuka is the immediate northern neighbor of Embu-Mbeere and constitutes a sub-cluster of its own. The two varieties Mwimbi and Muthambi are located in the central eastern foothills of Mount Kenya, divided by the river Nithi, whose name may be used as an umbrella term to subsume this sub-cluster (cf. Möhlig 1974a). Miutini and Igoji are relatively close to each other on the lexical level; they are, however, phonologically distinct. In regard to the lexicon, Miutini could as well be considered part of one sub-cluster together with Imenti and Nkubu. In general, Imenti, Miutini, and Nkubu are considered the three dialects of Meru. Tharaka, situated in the lower parts of northeastern Central Kenya, constitutes a language of its own. It may be divided into East- vs. West-Tharaka.

Finally, there is the Kamba cluster, which is the most homogeneous variety of all. In this study, it is divided into the dialects of Masaku, Mumoni, and Kitui. This division is, however, primarily a geographic one.

C	WESTERN						EASTERN										KAMBA		
L	Gikuyu						Embu-Mbeere		Chuka	Nithi		Igoji	Meru			Tharaka		Kamba		
D	Kiambu	Murang'a	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Mwimbi	Muthambi	Igoji	Miutini	Nkubu	Imenti	E-Tharaka	W-Tharaka	Mumoni	Masaku	Kitui

Table 201: Synchronic classification of Central Kenya Bantu (C = cluster, L = language, D = Dialect)

When comparing the classification in table 201 with the ethnologue-classification by Lewis et al. (2014), a few discrepancies are to be noted: First, ethnologue does not provide any division on the highest level of abstraction, such as a three-way split. Rather, Lewis et al. (2014) propose a division into seven distinct languages with a varying number of dialects:

KIKUYU-KAMBA																				
Gikuyu					Embu		Chuka	Mwimbi-Muthambi		Meru				Tharaka				Kamba			
N-Murang'a + Nyeri	S-Murang'a + Kiambu	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Mwimbi	Muthambi	Igoji	Imenti	Meru (Beik)	Miutini	N-Tharaka (Gatue)	C-Tharaka (Ntuki)	Igoki	Thagicu	Masaku	Mumoni	N-Kitui	S-Kitui

Table 202: Ethnologue classification (Lewis et al. 2014)

On the dialect level, a few discrepancies are to be noted: First, the division of Gikuyu by Lewis et al. (2014) diverges from my synchronic classification proposed in table 201. Ethnologue recognizes six Gikuyu dialects and includes Ndia and Gichugu. Nyeri and the northern part of Murang'a are subsumed as one dialect, called "Northern Gikuyu" by Lewis et al. (2014). Kiambu and the southern part of Murang'a, in turn, comprise another single dialect "Southern Gikuyu" in the ethnologue-classification. In this study, Murang'a is undivided.

Lewis et al. (2014) recognize the fact that Igoji is particularly close to Imenti, Meru (called Nkubu in this study), and Miutini, thus subsuming it under the Meru language. In contrast to this study, moreover, Tharaka is divided into four distinct dialects. The Kitui-dialect of Kamba, finally, is divided into north and south by ethnologue, which concurs with the findings presented by Möhlig (2014). It is to be noted that Lewis et al. (2014) also include the two varieties Tigania and Igembe under Meru. These dialects are located in the Nyambeni Hills in the very north of Central Kenya; they are excluded in this study for the lack of data. Furthermore, Lewis et al. (2014) list Dhaiso, a language today spoken in Tanzania, which is excluded here as well (see also 1.2).

Heine and Möhlig (1980) provide a dialectological (synchronic) classification of Central Kenya Bantu based on the parameter of dialectal proximity (see section 1.2.1), i.e. weighed dialectometrical calculations. Again, there are some discrepancies between the classification proposed in table 201 above and the one by Heine and Möhlig (1980):

In contrast to this study, Heine and Möhlig (1980) divide Central Kenya Bantu into two major clusters, called Kamba-Gikuyu and Meru-Tharaka. The former comprises Kamba, Embu-

Mbeere, and all varieties that are subsumed as Western in this study, i.e. Gikuyu as well as Ndia and Gichugu. The term 'Meru-Tharaka' by Heine and Möhlig subsumes all remaining varieties, i.e. the ones in the eastern foothills of Mount Kenya. Again, it is to be noted that Igembe and Tigania (both Meru) are included by Heine and Möhlig, while they are not dealt with in this study.

KAMBA-GIKUYU													MERU-THARAKA						
Kamba				Embu		Chuka	Gikuyu						Nithi		Igoji	Meru			Tharaka
							Gikuyu proper				South-Kirinyaga								
Mumoni	Masaku	N-Kitui	S-Kitui	Embu	Mbeere	Chuka	Kiambu	Murang'a	Nyeri	Mathira	Ndia	Gichugu	Mwimbi	Muthambi	Igoji	Imenti	Nkubu	Miutini	Tharaka

Table 203: Classification by Heine and Möhlig (1980: 14)

The two-way split suggested in table 203 cannot be confirmed from the present perspective. Rather than two groups, Kamba-Gikuyu vs. Meru-Tharaka, this study claims that Central Kenya Bantu may be divided into a total of three major clusters. On the lower level of analysis, i.e. the levels of languages and dialects, the findings by Heine and Möhlig (1980) and the ones in this study do, however, generally agree:

This study as well as Heine and Möhlig (1980) recognize that the western varieties constitute one cluster. This is made up of the four Gikuyu dialects (called "Gikuyu proper" by Heine and Möhlig 1980) as well as Ndia and Gichugu (subsumed as "South-Kirinyaga" by Heine and Möhlig 1980). The difference here concerns the level of abstraction: This study considers Western to be a major cluster of its own, i.e. on the same level with Eastern and Kamba. Heine and Möhlig (1980), in contrast, consider Gikuyu (= "Gikuyu proper" and "South Kirinyaga") a sub-cluster on a lower level within the group Kamba-Gikuyu.

On the lowest level of analysis, however, my classification mostly agrees with Heine and Möhlig (1980). There are only two discrepancies to be noted: On the one hand, the division of Kitui into a southern versus a nothern dialect is not recognized in this study. On the other hand, table 201 above shows that Igoji and the Meru dialects may not be as distinct as the classification by Heine and Möhlig (1980) suggests. Apart from the highest level of abstraction (two-way vs. three-way division), however, their dialectological classification may be confirmed from the present perspective.

In sum, the quantitative analysis shows that Central Kenya Bantu is synchronically divided into three major clusters – Western Kirinyaga, Eastern Kirinyaga, and Kamba. The former two clusters comprise the montane varieties, i.e. the ones in the foothills of Mount Kenya. Kamba, in turn, is located in the lower plains of Central Kenya. All three of these clusters are rather separate from each other, i.e. each group is set apart both phonologically and lexically. Consequently, it seems inappropriate to apply the term 'dialect continuum' to Central Kenya Bantu as a whole.

4.2 The Linguistic Divisions and the Immigration into the Highlands

This section aims at investigating what the synchronic picture may reveal about the history of Central Kenya Bantu – more specifically: the immigration of Bantu speakers into the Kenyan Highlands starting around 1500 AD. The following paragraphs mainly concern genealogical facts; contact explanations are reserved to the next section.

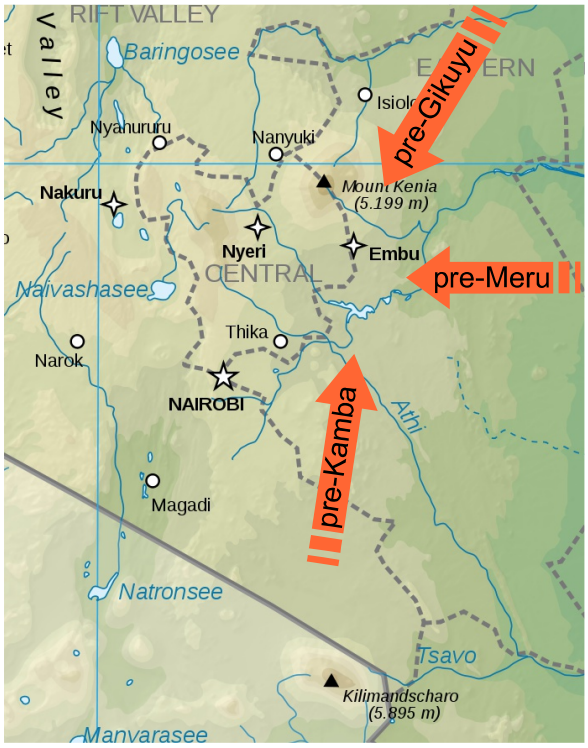
According to the oral traditions reviewed in section 1.2.2, the Kenyan Highlands have been populated by Bantu speakers for about 500 years. The moderate climate and rich soils in the area around Mount Kenya have attracted various peoples from different directions in search for farmland and grazing grounds. I pointed out in chapter 1 that this immigration ought to be understood as a slow migration into the highlands, comparable to trickling water drops that eventually form pools of water, i.e. areas of relatively high population density. Whenever population pressure grew to become unbearable – and farmland would become scarce in consequence – people started moving away from their settlements, further uphill in search for unoccupied land. This slow expansion of the different communities best describes the immigration of Bantu speakers into the area according to the oral traditions. The question in this study is: How is this historical scenario reflected in the language data?

Based on his own data on Central Kenya Bantu, first published in the 1970s, Nurse (1999: 4) claims a common origin for all languages. He considers all Bantu languages and dialects of the Kenyan Highlands to be the descendants of a single proto-language called 'Proto-Thagicu' (see section 1.2.1 for a discussion on nomenclature). Nurse (ibid.) admits, however, that his scenario is contradicted by the oral traditions, that speak of multi-regional origins of today's communities: "the linguistic evidence sees this clearly as a divergent, not a convergent group, and thus is unsympathetic to the picture presented by these traditions."

In Starzmann (2008), I showed that Nurse's (1979) classification exhibits some shortcomings, i.e. most of the linguistic features that his classification is based on are non-diagnostic in historical terms. Nurse (1979, 1999) approaches language history from a purely genealogical vantage point. In section 2.3, I called attention to the fact that the family tree model has no means of displaying convergent language relations. As Möhlig (1980a: 239) points out, this particular model presupposes a divergent scenario. Before this background, it is no surprise that Nurse's attempt of classifying the Central Kenya Bantu languages yields a scenario of divergence.

In Noonan's (2010) words, the comparative method, as it is employed by Nurse (1979, 1999), is merely a means of *verifying* genetic relations. Since all of the languages are members of the Bantu family, it is expected that they will show a relatively high amount of shared linguistic features in any type of comparative research. It is important to note, however, that not any instance of linguistic congruence ought to be understood as an indication of genetic relations, as convergence is always a possibility. Nurse's (1979, 1999) approach to the history of Central Kenya Bantu, however, gives little room for convergence. This fact seems to explain the discrepancy between Nurse's scenario and the picture drawn by the oral traditions. The quote by Nurse (1999: 4), cited above, consequently, seems to be ad-hoc.

The dialectological approach, in contrast, poses no such problem to the reconciliation of the linguistic findings with the historical accounts drawn from the oral traditions. I pointed out in section 2.1 that for dialectologists both genetic inheritance and diffusion are possible explanations for linguistic isogloss. In other words, none of these two factors is prematurely dismissed as a historical explanation – a fact that is reflected here in the methodical division into a quantitative (synchronic) and a qualitative (diachronic) analysis. Thus, we may say that for the comparative study of the closely related Central Kenya Bantu languages, the dialectological approach seems to be advantageous for theoretical reasons. Concerning the actual linguistic findings, moreover, the outcome of the quantitative analysis seems to match the historical immigration scenario of the oral traditions.



Map 7: The three major paths of influx into Central Kenya

The discussion of migration patterns in the Kenyan Highlands in section 1.2.2 showed that at least three major migration routes into the area around Mount Kenya can be identified in the literature. On the one hand, there is an influx by the ancestors of today's Kamba speakers, which are said to have come either from the northeast of Kenya or, possibly, from the south near Kilimanjaro. On the other hand, we find a second migration path taken by a group called Ngaa, whose descendants would later found the different communities on the eastern slopes of Mount. Kenya. The third route into Central Kenya was taken by the pre-Gikuyu, who entered the highlands from the north, slowly moving around Mount Kenya towards Murang'a, from where the Gikuyu expansion started in the western highlands.
The quantitative analysis of the phoneme systems as well as the lexicon represents these three different routes of migration. The outcomes of the relevant analyses, depicted in figure 63 and 64 above, show this very three-way split of Central Kenya Bantu: Kamba as well as the western dialects of Gikuyu, Ndia, and Gichugu are rather distinct from each other and the remaining varieties, i.e. the phonological and lexical distances between these three groups are rather high.
For a large part, this three-way division may be explained by linguistic divergence. For example, we find that Common Bantu *d is reflected differently in each group: The western dialects show [ɾ], Eastern has [ɽ], while the segment has been deleted in Kamba. The keyword *moon* may suffice as as a representative example of the three-way split:

(323)	430 moon	CB *-yédị C.S. 1965	>	*mʊ.ɛ:ri*	Eastern
			>	*mw.ɛ:ri*	Western
			>	*mw.ɛi*	Kamba

The following example in (324) also reflects the three-way division; in this case, however, no connection to Common Bantu can be established. Each cluster has inherited its own unique form:

(324)	112 to marry	*-gud-	>	*-gʊrana*	Eastern
		*-pik-	>	*-ɦik(an)ia*	Western
		*-tw-	>	*-twaa(na)*	Kamba

In sum, the respective histories of the three major clusters ought to be viewed as rather separate from each other prior to the immigration into Central Kenya. On the one hand, we find that each cluster shows unique ways of reflecting Common Bantu material, i.e. each cluster has undergone a different kind of language change. On the other hand, we can identify unique innovations in each group: Each cluster disposes of genuine forms that are unrelated to the ones found in the other clusters. These findings seem to support the view by the oral traditions that Central Kenya Bantu has multi-regional origins (rather than a common origin as suggested by Nurse 1999).

The oral traditions are vague concerning the exact origin of the different speech communities – some of the legends presented in section 1.2.2 even seem to provide contradicting accounts of the first waves of immigration around 1500 AD. This study is not able to determine the exact nature of migration prior to this period. The reader may be referred to Möhlig's (1978) historical classification of Eastern Bantu (based on phonology) for further information: He proposes that Central Kenya Bantu belongs to one of the two branches of his North-East-Stratum II. Tharaka, Meru, and Nithi, according to Möhlig (1978: 187), are genetically affiliated with the languages Gusii, Suba, Kuria (all today located in the Nyanza region), and Sonjo (northern Tanzania). The remaining varieties are, in turn, affiliated with Segeju and Nilamba, both spoken in Tanzania. As the perspective of this study is primarily internal, no claims regarding the exact geographic origin of the different clusters may be made here.

Nevertheless, one common origin of Central Kenya Bantu is unlikely. It is more plausible that different waves of immigration have taken place in the past 500 years, which is line with the picture drawn by the oral traditions.

Kamba is clearly set apart from all other varieties both lexically and phonologically. We find a large amount of items separating Kamba from both Eastern and Western. In some cases (a), Kamba shows a unique innovation, whereas the others have retained Common Bantu forms. In other cases (b), it is vice versa, e.g.:

(325) a. Innovation in Kamba

069 wound	*kɪ.rɔnda*	Eastern, Western	< CB *-dòndà C.S. 656	.
	kɪ.tau	Kamba	innovation	

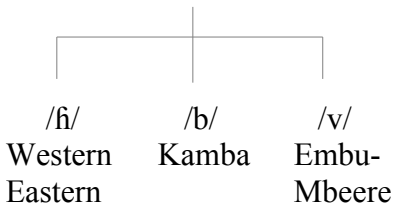
b. Innovation in Eastern and Western

085 to arrive	*-kiɲa*	Eastern, Western	innovation
	-bika	Kamba	< CB *-pi̱k- C.S. 1550

The cases in (325) exemplify that Kamba is distinguished from the other varieties. We may conclude that the Kamba speakers entered the area from a different direction than all others. We may even claim that Kamba is the most recent arrival in the region, with the Mumoni hills being the earliest center of dispersion of Kamba. This claim is, however, based on contact explanations and, therefore, reserved to section 4.3.5. The fact that Kamba shows a large amount of external loanwords not attested in the other varieties, incidentally, confirms

that the history of Kamba may have been rather separate from the history of Eastern and Western – again, this scenario is based on contact explanations (see section 4.3.2).
In addition to the distinction of Kamba, the items in (325) above exemplify that it is more difficult to find bundled isoglosses that separate Eastern from Western than isoglosses distinguishing Kamba from the other two clusters. The qualitative analysis revealed that there are a number of items shared by Western and at least some of Eastern that show no signs of diffusion, i.e. they are regular in shape and widespread in distribution.
One may, consequently, conclude that they are innovations shared by Eastern and Western. Such seeming shared innovations may point towards the conclusion that there is some sort of stronger genetic relation between Eastern and Western. However, such a conclusion is questionable both for linguistic and non-linguistic reasons:
First, the dialectometrical analysis shows a wide synchronic gap between Western and Eastern. As it is difficult to identify a large amount of isoglosses that represent this division, it needs to be stated that the quantitative outcome is based on the overall calculations. Nevertheless, if an alleged strong genetic relation between Eastern and Western did exist (i.e. there would be an immediate ancestor-language of the two groups), we could expect the linguistic distances to be much lower. Probably, Western would connect to the eastern dialect continuum without a complete break. This is, however, not the case (cf. figures 63 and 64 above).
Second, the oral traditions have it that the ancestors of the Gikuyu immigrated from a different direction than the people who founded the communities in the eastern foothills. In other words, from an extra-linguistic point of view, too, a common origin of Eastern and Western seems unlikely. Some of the synchronic agreement between Eastern and Western may rather be the result of language contact, which would be in line with the migration routes found in the oral traditions (see section 4.3.5).
In the quantitative lexical analysis along the lines of semantic domains, Embu-Mbeere seems to 'swing back and forth' between Eastern and Western. On the one hand, this is due to items that show no signs of borrowing and appear inherited. On the other hand, massive borrowing, especially from Swahili, has resulted in lexical homogenization between Embu-Mbeere and Western, for example in the field 'Animals'. I pointed out in section 4.1 that Embu-Mbeere is somewhat of a peripheral member of Eastern in phonological terms. This is due to divergence in the correspondence series *P_1 and *MB_2/_/i, u/. In both cases, Embu-Mbeere has diverged from all other varieties by showing dental fricatives:

(326) a.



b.

If it were not for the two cases of divergence in (326) above, Embu-Mbeere would be even closer to the remaining eastern varieties. It also shares a number of phonological rules with Eastern, for example, in the series *G relating to Common Bantu *g (see section 3.1.2). On the lexical level as well, Embu-Mbeere connects to the chain of dialects on the eastern slopes. In sum, the findings show that Embu-Mbeere must historically be considered a part of Eastern Kirinyaga.
The divergence of Embu-Mbeere shown in (326) may be the result of a situation Ross (1997) describes as linkage breaking (cf. section 2.1.5), i.e. the abrupt reduction of social networks

between the Embu-Mbeere and their neighbors on the eastern slopes: The feature [+dental] in Embu and Mbeere in (326) constitutes an unique innovation. Possibly, this is the result of the westward migration of speakers who would found the Embu and Mbeere communities in the south of Mount Kenya. As the founding fathers of the Embu and Mbeere moved away from their eastern neighbors, an ethnic identity among them may have started to develop, which, in consequence, relatively abruptly reduced the social networks with their neighbors in regard to the the density and multiplexity of its links. In short, Embu-Mbeere may be an off-shoot from Eastern, historically separated due to the speech community event of linkage breaking.

In Muriuki's (1974) study on Gikuyu history, in contrast, Embu-Mbeere, Chuka, and Tharaka are all considered representatives of an alleged pre-Gikuyu movement clockwise around Mount Kenya. However, regarding phonology and lexicon, these varieties are relatively far apart from today's Gikuyu dialects. They clearly belong to the eastern varieties. Consequently, Muriuki's conclusions that all of the above groups took one and the same migration route seems implausible from a linguistic perspective. Malicious tongues may even claim that the work by Muriuki is best understood when considering its political context:

Ever since independence, Kenyan politics have been dominated by Gikuyu activists. In chapter 1.2, I remarked that the tribalist organization GEMA, the Gikuyu-Embu-Mbeere Association, was most successful in making claims over land after independence. Especially in the early years of independent Kenya, being a highlander affiliated with Gikuyu activism seems to have granted some political opportunities, that were refused to citizens from other parts of the country. In short, Muriuki's claim on a common provenance of Gikuyu, Embu-Mbeere, Chuka, and Tharaka may have provided a welcome scientific basis for the legitimization of political alliances, such as the GEMA. From a linguistic point of view, however, Gikuyu, Ndia, and Gichugu constitute a group of their own, which is relatively distant to Embu-Mbeere and the remaining varieties. It seems that the Gikuyu are, in fact, the only descendants of the people of Mukurue wa Gathanga, a place mid-way between the towns of Nyeri and Murang'a, generally considered the center of dispersal of the different Gikuyu communities (see section 4.3.5). Judging from the statistical outcome presented here, a close pre-historical affiliation with the remaining groups is unlikely.

In chapter 1.2.2, I stated that some oral traditions deny any migration into Central Kenya. This claim, however, seems unlikely from a linguistic perspective and is best explained as being motivated politically as well: Some communities may have denied their history of migration for fear of losing their territory to British land grabbing. The Chuka upheld this standpoint even when land was not such a hot topic prior to the major influx of European settlers (Orde Browne 1925: 20). From a linguistic point of view, it seems unlikely that the Chuka are primordial inhabitants as opposed to, for example, pre-Tharaka and pre-Meru pioneers. If the Chuka had, in fact, come from a completely different stratum and not shared any of the migration routes taken by their neighbors, their language would be expected to show more differences to the remaining varieties on the eastern slopes. Both phonologically and lexically, however, Chuka belongs to the Eastern Kirinyaga dialects and is anything but an outlier. We need to conclude that the Chuka belong to the offspring of immigrants that first entered the Kenyan Highlands from 1500 AD onwards.

The expansion of the communities in the vicinity of Mount Kenya was connected to the clearance of cultivation grounds, especially in precolonial times. Whenever a family was in need of more farmland, the sons of the homestead would move further uphill in order to claim a new plot for growing crops. This general uphill movement is reflected in the divergence of core vocabulary in the dialects on the eastern slopes of Mount Kenya:

According to the oral traditions, once upon a time, there was a people called Ngaa, who are considered to be the ancestors of the communities in the east of Mount Kenya. Upon arrival in the foothills, their ethnic unity is said to have dissolved, while different factions of the

population started to claim land on the lower slopes. In the semantic field 'Sense Perception', for example, all of these dialects are fairly distinct from each other (see figure 30 in chapter 3.2.2). This, I argue, reflects the time in the history of these communities when people were slowly moving up on the respective mountain ridges, while diverging from each other in linguistic terms. The further uphill these settlers went, the more difficult it became to communicate with the inhabitants of neighboring ridges, which are separated by steep valleys, creeks, and rivers. The different communities remained rather separate from each other for a long period of time. This is not to say, however, that intra-dialectal contact had no influence on these varieties, as it will be shown below in the next section.

The divergence in Eastern concerns both lexicon and phonology. In contrast to Western and Kamba, the eastern varieties have developed a number of distinctive phonological rules, e.g. in the series *G: When followed by /i/, for example, all eastern dialects show a plosive realization of Common Bantu *g, i.e. [g]. Western shows a fricative realization as [ɣ] throughout, regardless of the vowel following the segment. In Kamba, Common Bantu *g is deleted. The phonological rules in Eastern seem to be due to divergence. This kind of divergence may be interpreted in two respects, i.e. regarding (1.) geography, (2.) time, and (3.) the social background:

(1.) The eastern slopes of Mount Kenya are separated from each other by steep valleys. The preferred areas of settlement are the mountain ridges, not the valleys between them. The geographic separation between these ridges seems to have favored divergence. Synchronically, the eastern varieties may be described as the most complex dialects in phonological terms: Not only do we find a set of different phonological rules not attested otherwise; we also find that the phoneme system of Meru, for example, shows one of the largest inventories in all of Central Kenya Bantu. These observations are in line with Nichols' (2003: 47) statement about mountain languages: "high inventory size is associated with [...] those isolated in the highlands." In general, the mountain geography seems to have favored the high amount of variation in Eastern. Consequently, we may confirm from the present perspective what Nichols (2003: 39) claims for mountain languages in general: Due to the fact that mountain highlands preclude large open networks, more linguistic complexity and individual variation is found in montane varieties. In languages of the lowlands, such as Kamba, in contrast, linguistic differences tend to get leveled out, because central locations favor the development of large networks – they are less open to complexity and variation.

(2.) The high amount of synchronic variation in Eastern may also be interpreted in chronological terms: I argue that the eastern cluster is probably the oldest Bantu group in Central Kenya. Presumably, the first immigrants entered the area around 1500 AD. From then onwards, population expansion took its course and people were gradually moving further uphill in search for fresh cultivation grounds. It seems that the high amount of variation within Eastern is due to the fact that these varieties have undergone the longest period of divergence. We may conclude, therefore, that Eastern Kirinyaga is the oldest cluster of Central Kenya Bantu.

(3.) The gradual expansion of the different communities on the eastern slopes of Mount Kenya may be the result of a social situation that Ross (1997) calls 'lectal differentation': As the population in the eastern foothills was growing, a slow geographic expansion of the different communities took its course. Throughout time, the social and communicative networks in the area were gradually reduced due to the geology of the region. As it is typical for a case of lectal differentation, the overlapping isoglosses remained in the eastern foothills (see 2.1.5 for a description of Ross' model). Insofar, Eastern may be understood as a typical case of lectal differentiation in Central Kenya Bantu.

Even though an immediate common origin of all three clusters seems unlikely, there is, of course, a deep genealogical relation between the three groups. On the one hand, all of Central

Kenya Bantu connects through a total of 229 Common Bantu items (see table 185 in section 3.3.3). On the other hand, we find a number of lexical items that connect the entire group without relating to Common Bantu (see table 187 in section 3.3.3). In semantic terms, these lexical meanings represent classes that are considered borrowing resistant as well as domains that are known to be prone to borrowing. Especially in the latter case, neither inheritance nor borrowing can be ruled out. For this reason, the historical nature of these items remains unclear. Moreover, due to the fact that the perspective taken in this study is primarily internal, we cannot say whether the respective items are only shared by Central Kenya Bantu or whether they are found beyond the Kenyan Highlands. It is, nevertheless, evident that the relevant items are fairly old or, in other words, have been part of the lexical inventories for some time. In respect to the social history of Central Kenya, the following conclusions may be drawn in this context:

From an ethnographic point of view, one may say that Central Kenya forms a cultural area, i.e. a region of relative environmental and cultural uniformity, characterized by societies that show significant similarities in social structure and mode of adaption (Winthrop 1991: 61). The different communities around Mount Kenya, as I pointed in section 1.2.2, for example, have all adapted to the environmental conditions in similar ways by engaging in a mixed economy. In terms of social structure, the same cultural institutions, such as clans and age-sets, are found throughout the entire area. In some cases, e.g. in regard to initiation rites or social structure, it is not always clear whether a specific widespread cultural trait originated in Nilotic, Cushitic or Bantu communities.

In social anthropology, the criteria for defining cultural relationships are subject to debate. It is, for example, difficult to determine to what degree two societies need to resemble each other culturally in order to qualify as closely related groups (Hirschberg 1999: 227). If we take this into account, combined with the somewhat flexible modern definition of ethnicity (Barth 1969), defining the notion of culture based on certain social variables seems a rather difficult task.

Analogically, in language classification as well, the diagnostic value of linguistic features has always been under debate. Thus, different answers might be provided to Ehret's (1999: 45) well put question: "What categories of innovation are grist for the classificatory mill?" Möhlig (1974a), for example, discusses the relevance of boundary-defining linguistic features in the context of the Eastern Kirinyaga dialects.

There exist a number of cultural lexical items, for example in the field 'Food and Drink', that are common to all of Central Kenya Bantu and seem to point to an old cultural connection between the relevant communities in the highlands. It is, however, unclear whether these items are specific to the languages under investigation or whether they are attested in other East African Bantu languages as well. In any case, some widespread cultural items suggest an old cultural connection: For example, some culinary and agricultural terms seem to refer to an old East African cultivation culture, e.g. *238 to pound* (< *-kim-), *240 mortar* (< *-tid-) *394 banana* (< *-digu), and *396 sugar cane* (< *-gwa). Table 185 in section 3.3.3 provides a full list of such common forms.

We may conjecture that the relevant notions had been in place prior to the immigration of Bantu speakers into the Kenyan Highlands. As the people who migrated into Central Kenya were certainly no people without history, they must have had cultural customs that would later develop specific socio-economic traits, such as certain traditions of land tenure and cultivation techniques.

It is impossible to construct common meta-forms that connect all of Central Kenya Bantu in the field 'Social and Political Relations'. We may, therefore, conjecture that each group had its own social customs at the time of immigration (cf. example 324 above). Again, this suggests multi-regional origins. In other fields, especially 'The Human Body', 'Quantity and Quality',

'Food and Drink', and 'Agriculture and Vegetation', in contrast, a number of common roots may be identified.
Since these lexical items are attested across the boundaries of languages and even clusters without declaring their origin, they remain intransparent in historical terms. One may assume that they had been present in every cluster before the Bantu immigration into Central Kenya started. However, we cannot rule out that they diffused throughout the highlands after the first Bantu pioneers reached the highlands. In fact, we may not even rule out in many cases that they were transferred into Central Kenya Bantu by language contact with the original inhabitants of the area.
The local traditions explain that the Bantu pioneers encountered a number of different groups upon arrival in the area around Mount Kenya. As pointed out in section 1.2.2, relatively little is known about these people. We do know, however, that the Bantu pioneers engaged in a variety of social and economic relations with the original mountain inhabitants. In order to buy land from the Dorobo, for example, the Gikuyu would establish kinship relations with some of these groups (Leakey 1977: 87 f.). A few of today's Gikuyu clans, as Muriuki (1974: 29) remarks, are said to go back to the Dorobo. Consequently, we cannot rule out that some of the forms that seem inherited based on their regular shape and distribution have been transferred into Central Kenya Bantu through language contact at an early stage of Bantu immigration or even prior to that period (a further discussion is provided in section 4.3.3 on Cushitic borrowing).
In the context of ethnographic facts, such as male circumcision or the ritual bleeding of cattle, it is, accordingly, not quite clear whether Bantu, Nilotic, or Cushitic speakers were the first East African people to come up with these customs. The same holds for different concepts that are denoted by the proposed common roots found in this study. We can, however, assume that specific modes of agriculture, reflected in the lexical heritage, had been present in the respective regions from where the different Bantu migrants moved towards the Central Kenyan Highlands. In regard to social and political terms, in contrast, such a deep connection prior to the first waves of immigration seems unlikely.
In sum, this section showed the following conclusions on the migration history on the basis of the linguistic data: The quantitative analysis divides Central Kenya Bantu into three clusters – Eastern, Western, and Kamba. A common origin of these three groups, as proposed by Nurse (1999), seems unlikely from a linguistic perspective. Insofar, the linguistic findings in this study confirm the picture drawn by the oral traditions, i.e. multi-regional origins and at least three major waves of immigration. In contrast to Muriuki's (1974) scenario, Embu-Mbeere must be considered a part of Eastern Kirinyaga rather than as belonging to a general pre-Gikuyu migration.
The eastern cluster shows the largest amount of lexical variation and phonological complexity. On the one hand, this relates to the mountain geography of the area (cf. Nichols 2013). On the other hand, we may argue that the high degree of synchronic variation in Eastern Kirinyaga is based on a long period of divergence. Consequently, the eastern cluster may be considered the oldest of the three major groups.

4.3 Contact Processes

This section discusses different contact processes that have taken place in Central Kenya Bantu. The previous section showed that the ancestors of the respective communities approached Mount Kenya from different directions. In this section, the migration routes within the region are specified and the issue of a historical chronology is addressed. The linguistic findings indicating language contact are, again, correlated with the extra-linguistic

evidence from the oral traditions. Thereby, we are able to catch a glimpse into some of the social conditions that have shaped the different communities in the past 500 years.

It is evident in the oral traditions that the Bantu immigrants started to engage in various social and economic alliances once they had reached the area around Mount Kenya. I explained in section 1.2.2 that the immediate unit of self-identification in pre-colonial times were the clans that comprised members of a specific geographical area, such as a mountain ridge. Prior to the establishment of colonial rule, the clans were characterized by social integration. For this reason, an individual's membership to a specific clan may not necessarily reflect the person's factual descent. Rather, many clans, for example in the Gikuyu communities, comprise people with quite diverse ancestral backgrounds, such as Kamba or Maasai. The incorporate nature of the different communities, it seems, is represented in the linguistic data, which show many instances of language contact.

Thomason and Kaufman (1988) distinguish between two types of language contact: Borrowing versus interference through shift.

"Borrowing is the incorporation of foreign features into a group's native language by speakers of that language: the native language is maintained but is changed by the addition of the incorporated features" (Thomason and Kaufman 1988: 37). The first foreign elements that enter the recipient language in a borrowing situation are words. In general, we may assume that loan words refer to concepts that are new or somehow culturally noteworthy by the time of borrowing (cf. Epps 2015). For example, the fact that the word for *window* is a loan going back to Swahili *dirisha* in every Central Kenya Bantu language reflects the fact that glass windows are a rather recent technological innovation that was introduced to the highlands by trade. Borrowing from Swahili, Maasai, and Cushitic under the keyword *blood*, in turn, suggests that this keyword may have been culturally significant, possibly due to a taboo restriction.

If the cultural pressure from source-language speakers on the borrowing-language is long and severe enough, then structural features, such as phonological and syntactic elements, may be borrowed as well (Thomason and Kaufman 1988: 37). Extensive structural borrowing seems to require extensive bilingualism among the borrowing-language speakers, i.e. there is a relatively large group of active bilinguals who speaks the source language fluently and frequently. Whereas "lexical borrowing frequently takes place without widespread bilingualism" (ibid.). The extent of borrowing may depend on a number of social factors, such as population size, the length and intensity of contact, and the degree of bilingualism. Widespread bilingualism and long-term contact, for example, may result in extensive structural borrowing. A high level of bilingualism may, in turn, be connected to cultural pressure: "a population that is under great cultural pressure from another speech community is likely to be largely bilingual in the language of that community" (Thomason and Kaufman 1988: 67).

In the context of interference through shift, bilingualism is also an important aspect. In this case, however, the target-language is not influenced by native speakers who are bilingual. Rather, it is speakers of a foreign language shifting to the target-language who bring about linguistic change. This type of interference "results from imperfect group learning during a process of language shift" (Thomason and Kaufman 1988: 38). In other words, native speakers of language A come to learn language B, thereby inducing changes in language B as they cannot help but retain some of the characteristic features of their native tongue. In laymen's terms, one could say that the shifting population speaks the target-language with a foreign accent, which is perpetuated in the course of time. In contrast to borrowing, interference through shift does not begin with vocabulary but with sounds and syntax. Usually, the shifting speakers only keep such (cultural) items that the target-language has no words for (Thomason and Kaufman 1988: 38 f.).

Interference through shift is determined by a number of social factors. If the shifting group is very small, for example, little or no changes are introduced into the target-language. A slow shift, i.e. over several generations, may also leave little or no traces in the target-language, as the shifting population may learn the target-language perfectly, i.e. "accent-free" (Thomason and Kaufman 1988: 120).

In the literature, interference through shift is often divided into (a) superstratum, (b) substratum, and (c) adstratum influence. According to Thomason and Kaufman (1988: 116), superstratum languages are typically spoken by victorious invaders who shift to the language of the conquered people. Substratum languages are typically spoken by conquered populations or socio-politically subordinate groups, such as immigrants. The term 'adstratum' refers to a situation in which there seems to exist no social and political dominance of one group over the other.

In the context of the immigration and expansion of Bantu communities in the Kenyan Highlands, the terms 'invaders' and 'conquered people' seem somewhat inappropriate. It is evident in the oral traditions that the precolonial history was anything but peaceful. We know of many battles between the different sections of population. However, it is important to note that these fights did not necessarily take place along linguistic lines. In contrast to a popular cliché, for example, the different Gikuyu clans would engage in just as many fights with each other as with the neighboring Maasai communities (Muriuki 1974: 28 f.).

The application of a term like 'invaders' in the context of language contact in Central Kenya seems unfeasible for another reason: Alpers and Ehret (1980: 494) show that the relations between the Gikuyu and Maasai, for example, were sometimes peaceful and warlike at the same time. While the soldiers of each community were fighting each other, the women of the two groups were assured free passage in order to be able to exchange trading goods (see section 1.2.2).

In general, the oral traditions suggest that cultural and, consequently, language contact were often based on cordial relationships in precolonial times. I showed in section 1.2.2 that economic relations most commonly presupposed the establishment of social relations. For example, the basis for the exchange of land and commodities were kinship relations, some of which seem to have been established by sworn brotherhoods just for this purpose. Especially during crisis, e.g. in times of famine, these alliances were most beneficial: If such a relation had been breached by a military conflict prior to a period of drought, for example, the parties would soon engage in peace negotiations in order to enable the free flow of trading goods and migrants. In short, when determining the nature of a specific shift-situation (e.g. super- versus substratum), it seems unfeasible to use terms like 'invasion' as these might entail inappropriate implications about the social circumstances during the times of language contact in Central Kenya.

Nevertheless, the distinction between super- versus substratum may enable us to specify some contact relations in regard to the social prestige of the involved groups. For example, "if the language of a shifting population did not contribute lexicon to the target language, other than a few words [...], then we can conclude that the shifting population did not enjoy much social or political prestige" (Thomason and Kaufman 1988: 117). This becomes evident, for example, in the context of Maasai speakers shifting to Gikuyu and Kamba (see section 4.3.4).

Distinguishing borrowing from interference through shift is not always an easy task. Thomason and Kaufman (1988: 111) note that language shift is especially difficult to demonstrate, because a completed shift results in the disappearance of the shifting group's original language. Thus, we have no comparable data in such cases. Structural borrowing is, in contrast, easier to identify because both the donor and target-language are maintained. Moreover, structural borrowing is preceded by lexical borrowing (Thomason and Kaufman 1988: 113), which is often relatively easy to identify on formal and distributional grounds. It

is important to note that borrowing and language shift may happen at the same time: "If we know that contact was intimate enough to make shift as well as borrowing probable, there is no reason to suppose that one process operated to the exclusion of the other" (Thomason and Kaufman 1988: 69). The discussion in the following sections shows that this statement holds true for Central Kenya Bantu.

4.3.1 Contact with Unknown Donors

The first type of diffusion to be discussed here is borrowing from unknown donors. In general, every cluster has been affected under one keyword or the other. However, Kamba seems to have been impacted most severely: In almost every semantic domain we can identify a relatively large number of words in Kamba that declare their foreign origin based on their aberrant shape and / or restricted distribution. As the respective donor languages cannot be specified, the exact historical nature of these items remains unclear. Incidentally, however, the fact that Kamba show a wide range of external loans that have never made their way into Eastern and Western suggests that they were transferred into Kamba in pre-historical times, i.e. prior to the immigration into the highlands. This, of course, is only negative evidence.
Nevertheless, this observation may indicate that Kamba is the most recent arrival in Central Kenya: If the respective external loans had been borrowed after the Kamba entered their present territory, we could expect them to have at least left some traces in the remaining varieties. However, as these items remain historically inconclusive, we cannot make any specific claim regarding the origin and time-depth of the relevant lexemes. For further information regarding possible donor languages, the reader may be referred to Möhlig (2014).
On a side note, the fact that Kamba has been affected most severely by external donors may also relate to its locations in the lower parts of Central Kenya – possibly, the open plains of the Kamba territory favored open communicational networks, through which the external loans have been introduced more easily than in the montane varieties (cf. Nichols 2003).

4.3.2 Early Bantu Contact

The time-depth of Bantu loanwords is similarly intransparent, i.e. we cannot be certain at which historical stage the loans identified as Bantu material entered Central Kenya Bantu. Most probably, the relevant contact situations took place prior to the immigration period. In this context, we can only speculate about the respective donor languages. All that is clear is the fact that the donors must have been Bantu languages. This argument is based on the comparison of the relevant material with Guthrie (1967-71). The following list provides an overview of Bantu loans in Central Kenya Bantu. These items are considered to be loans based on their irregular shape – the expected regular shapes are also included in the list.

Item	Common Bantu	Loan in CKB	Expected shape	Possible source / donor
031 ribs	*-bàdù C.S. 30	*rU.baru* (West)	*mbaru	*ɔrǫβarų* Nata (E.45)
077 to give birth	*-bíad- C.S. 136	*-jia:ra / -syaa* (all)	*-iara	*-zaar-* Nyoro (E.11)
110 family	*-gį C.S. 818	*mU.ciɪ, mU.jiɪ* (East) *mU.syɪ, mU.sɪɪ* (Kamba)	*-gi *-i	*mudzi* Pokomo (E.71)
202 to open	*-bàŋgud- C.S. 59a	*-ɦingUra* (East, West) *-βingUa* (Kamba)	*-anguda *-angua	?
231 to strain	*-cúng- C.S. 419	*-cunga, -cunka* (all)	*-ðunga	*-tsuŋg-* Pokomo (E.71)
342 bird	*-yònį C.S. 2121	*gɪ.cɔni* (Embu-Mbeere) *ka.sɔni* (Kamba)	*ɲɔni	?
345 to fly	*-bùduk- p.s. 43	*-bu(:)rU(rU)ka* (East) *-gUrUka* (Embu-Mbeere)	*-uruka	? *-guruk-* Nyoro (E.11) *-guruk-* Rundi (E.62)
406 maize	*-pémbá C.S. 1475	*mpɛmpɛ / mbɛmbɛ* (East, West)	*ɦemba, *mbemba	?
448 water	*jínjè C.S. 2079	*rU.Ujɪ, rU.:jɪ* (East)	*njɪ	?
456 path	*-jìdà C.S. 940	*ga.cɪra / ga.sɪra* (West), *ka.syɪla* (Kamba)	*njɪra *nzɪa	?
487 six	*-tándàtú C.S. 1667	*-tanðatU, -ðanðatU* (all)	*-tandatu	*-tandatu* Shambala (G.23)
569 coldness	*-pépò C.S. 1492	*mbɛβɔ, mpɛβɔ mbɪβU, mpɪβU* (East, Kamba)	*ɦɛhɔ *mbɛɦɔ	?

Table 204: Bantu loans

The possible donor languages listed in table 204 are more or less free to speculation. From a geographic point of view, however, the Pokomo varieties, today spoken on the lower course of the river Tana, are plausible donor candidates. As mentioned above, however, no specific claims regarding external Bantu donors can be made here.

4.3.3 Cushitic Contact

In regard to the number of affected lexical items, the impact by Cushitic borrowing has been relatively low: Only ten Cushitic loans can be identified, of which three entries are questionable (see table 194 in section 3.4.2). The northern Cushitic languages that border Tharaka and Kamba today seem to have left no traces of language contact in Central Kenya Bantu (see section 3.4.2). All the relevant items originate from Southern Cushitic.
There are two possible scenarios that may explain language contact with Cushitic. The first scenario refers to pre-historical times, i.e. the period prior to the first Bantu immigration into

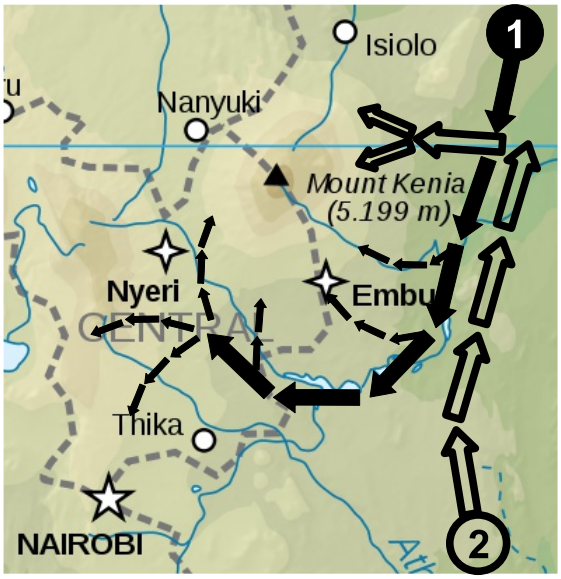
Central Kenya. The second scenario is set at a later historical stage: after the Bantu pioneers reached the area around Mount Kenya in the 16th century.
Philippson (2013) provides a concise overview of the different claims that have been made by various authors in regard to the earliest putative contacts between Bantu and Cushitic speakers. The relevant time period concerns the 5th to the 3rd centuries BC (called "Late Mashariki" by Ehret 1998): "The Pre-Luhya, East Nyanza, Central, Upland [= Mount Kenya and Kilimanjaro Bantu] and Langi groups are supposed to have resided in an extended cluster along the southern shores of Lake Victoria (Southern Nyanza cluster). This is when the impact from [Southern Cushitic] was felt throughout most East African Bantu languages" (Philippson 2013: 83). I stated above in section 4.2 that due to the internal perspective of this study, I cannot make any claims on the geographic origins of the different clusters of Central Kenya Bantu. Nevertheless, it is clear that all ancestors of today's speakers lived in an area outside the highlands.
Following this view, we may assume that the earliest contact between Cushitic and the ancestors of today's Central Kenya Bantu languages must have happened some time prior to immigration. Possibly, widespread loans, such as *(n)ðakamɛ* 'blood' and *ŋɔɔndu* 'sheep', were introduced by that time. It is impossible, however, to come up with a conclusive time-line from the present perspective. All we can say – based on the literature and the language data – is that pre-historical contact between Bantu and Cushitic is most likely
The second possible scenario of Cushitic contact concerns the time after the first Bantu immigrants reached Mount Kenya about 500 years ago. We know from the oral traditions that these pioneers encountered primordial inhabitants, who are known under different names, such as Athi, Dorobo, or Okiek. Liesegang et al. (1979: 16) point out that at least some of these groups spoke a Cushitic language. The oral traditions have it that the first Bantu immigrants engaged in various socio-economic relations with the original inhabitants. According to Muriuki (1974: 29), in the Gikuyu area, for example, the new arrivals mixed with the original population, rendering the Dorobo the ancestor of some Gikuyu sub-clans. The fact that we find social terms in the montane varieties going back to Cushitic (*123 daughter* and *131 barren woman*) may relate to this circumstance.
All three clusters of Central Kenya Bantu are affected by Cushitic to the same degree, i.e. there is no uneven distribution of Cushitic loans. Nevertheless, Cushitic borrowing in Western might have taken place at a later stage than in Eastern, i.e. after the Gikuyu reached the river Chania around 1700 AD, where they met the Dorobo (Leakey 1977: 51). Some of these groups, Muriuki (1974: 65) notes, were expelled by the Gikuyu and forced into the northern plains next to Mount Kenya. The relations with others, as pointed out, were friendlier. In general, as I remarked in section 1.2.2, relatively little is known about the original population, their culture, and language. Thus, the exact nature of the putative contacts between the Bantu immigrants and a presumably Cushitic speaking primordial population remain to be specified.

4.3.4 Early Internal Language Contact

Based on the high amount of divergence, I argued in section 4.2, Eastern is the oldest cluster. Kamba is, in turn, clearly distinct from both Eastern and Western and seems to be the most recent arrival (see below in this section). The qualitative analysis, moreover, showed that bundled isoglosses separating Eastern from Western are difficult to find. This may be interpreted in a genealogical sense; however, we may also argue that, instead of a deeper genetic affiliation, Eastern and Western are connected through a variety of contact processes. This section deals with the time after the immigration into Central Kenya had started around

1500 AD and various socio-economic ties were established among the different groups of immigrants. First, the montane varieties are dealt with, i.e. Eastern and Western. Second, I discuss Kamba.

Eastern and Western may be called the montane varieties as they are today situated most closely to Mount Kenya. According to the oral traditions, they entered the highlands from different directions. The Pre-Eastern approached the area from the south gradually moving north; the Pre-Western took the opposite direction, i.e. they entered from the north and moved south, counterclockwise around Mount Kenya. These two migration routes crossed repeatedly throughout the past centuries.



Map 8: (1) Pre-Western and (2) Pre-Eastern migration routes

Map 8 shows that the Pre-Western moved clockwise around Mount Kenya. On the way, some of these migrants settled down, i.e. they established homesteads in the lower eastern foothills of Mount Kenya. In the early 16th century, they settled, for example, in the area of Chuka and Embu (Odhiambo 1977: 69 f.) as well as near the present territory of Mwimbi-Muthambi south of the river Nithi (Muriuki 1974: 50 f.). The fact that we find some isoglosses uniting these areas may relate to this particular migration pattern (for example in the field *3.Motion* in section 3.2.2): Instead of assuming a pre-historical relation in these cases, the lack of bundled isoglosses between Eastern and Western may be interpreted as the result of internal diffusion.

The following example may make a case for a relation between Eastern and Western based on interference through shift. I discussed in section 3.2.2 that Western and Kamba correspond regularly under the keywords *hair* and *cock*. The corresponding forms in Eastern are, in contrast, irregular.

(327) 004 hair

CB *-jʊ́ídí C.S. 967

Kamba	Western	Eastern
nzwɪɪ	*njʊ̱ɪːrɪ*	*nciʊri*

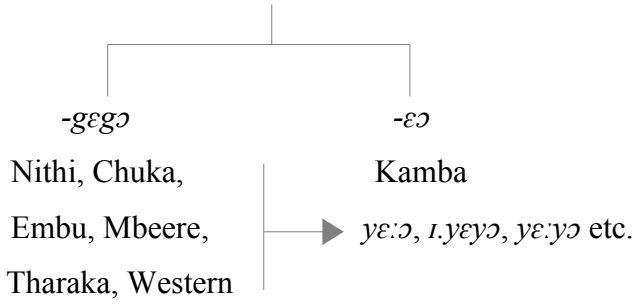
290 cock

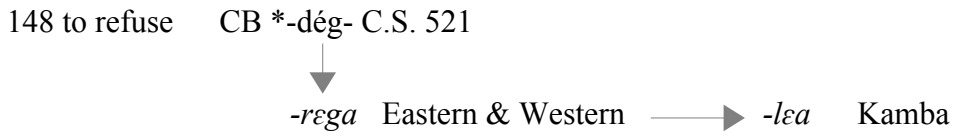
*-jamba

Kamba	Western	Eastern
nzamba	*njamba*	*ncamba*

On the one hand, example (327) may interpreted as borrowing from Western (or Kamba in the case of *cock*) into Eastern.
On the other hand, the situation described by example (327) may be due to Pre-Western speakers shifting to the eastern varieties: In Western, the word *njamba* may be phonetically described as [nʒamba]. If the eastern form were regularly related, the pronounciation *[ndʒamba] (*njamba) would be expected, for example in Mwimbi-Muthambi. However, the eastern form *ncamba* represents the articulation [ndʃamba] in Mwimbi-Muthambi. In short, the item *cock* constitutes a multi-valent form, i.e. it attests to the overlap of the two series *NJ and *NC_1.
The overlap of these two series may the be the result of Pre-Western speakers shifting to Eastern, e.g. Mwimbi. They could not help but retain the feature [nʒ] (imperfect learning), which was reproduced by Mwimbi speakers as [ndʃ], an aberrant sound. In the course of time, this sound was interpreted as a distinctive phoneme by Mwimbi speakers yielding the phoneme /nc/. Insofar, the shifting of Pre-Western speakers to Eastern may have resulted in the restructuring of the phoneme systems, i.e. enlargement of the inventory. The overlap of the two series *NJ and *NC_1 may be the result of interference through shift: Along their migration path around Mount Kenya, some Pre-Western speakers shifted to the varieties of the local population in the eastern foothills (which matches the descriptions in the oral traditions).
The area between the Mumoni hills and Mount Kenya seems to have been a contact zone where various ties were established between Pre-Western and Pre-Eastern speakers. These events may have taken place from the early 16th century onwards. The Pre-Western movement clockwise around Mount Kenya then continued until reaching Mukure wa Gathanga in the 17th century – this place between the present-day towns Murang'a and Nyeri is considered the center of dispersal of today's Gikuyu communities both north and south. In the meantime, the eastern communities were moving further uphill on the eastern slopes, eventually settling even on remote mountain ridges.
The pre-Kamba are said to have first settled in the Mumoni hills at around 1650 AD (Maxon and Ofcansky 2000: 105). The linguistic data produce a large amount of evidence for contact between Kamba and the montane varieties, especially Eastern. By the mid-1600s, it seems, Kamba started playing a role in the contact zone between the Mumoni hills and Mount Kenya.
In the following cases, we may argue both borrowing and interference through shift. A vast amount of lexical items indicate downhill diffusion, i.e. from Eastern and Western into Kamba (see 188 in section 3.4.2), e.g.:

(328) 018 tooth CB *-gègò C.S. 802





In both cases of example (328) we may argue that downhill borrowing has taken place, i.e. upon arrival in the highlands, some Kamba speakers learned to speak eastern varieties and, then, imported lexical material from the eastern slopes into their native language. The occurrence of /l/ in *-lɛa* 'to refuse' may be interpreted as the incorporation of a loan phoneme (adaptation), i.e. structural borrowing.

We may, however, also argue that the examples in (328) describe interference through shift: In this case, we may assume that speakers of Pre-Eastern (and, possibly, Pre-Western) shifted to Kamba. During this process, they failed to learn Kamba perfectly. For example, they did not delete /g/ of their native languages, i.e. they kept a distinctive accent and continued to articulate *-gɛgɔ* [-ɣɛɣɔ] 'tooth' instead of learning the genuine Kamba word *-ɛɔ*. Native Kamba speakers then adopted the aberrant forms eventually yielding *yɛːɔ*, *ɪ.yɛyɔ*, or *yɛːyɔ*.

The same argument may be made for the case of *to refuse* in example (328): In this instance, we may assume that the shifting population caused a restructuring of the Kamba phoneme system, i.e. the introduction of /l/. It is to be noted that an interference feature (in this case: /l/ in Kamba) is not necessarily the same as the source-language feature (in this case: /r/ in the montane varieties) that motivates the innovation (Thomason and Kaufman 1988: 62). There does not necessarily have to be a point-to-point identity regarding such features.

The opposite direction of diffusion, i.e. uphill from Kamba to Mount Kenya, is also attested (see table 189 in section 3.4.2). In this case, however, we only find a handful of items. Again, both borrowing and interference through shift can be argued. Either Kamba speakers shifted to the eastern varieties, or native eastern speakers learned Kamba and borrowed some lexical items. Possibly, the aberrant segment /b/ was introduced into Chuka by that time – either through structural borrowing or by interference through shift.

Genuine Kamba vocabulary has only made its way into Eastern, while Western shows no signs of genuine Kamba words. This observation suggests that Mumoni is the original center of dispersal of Kamba, i.e. the first contacts the Kamba speakers made with Bantu speakers in the mid-1600s were with the eastern population. Possibly, most of the Pre-Western movement had already continued further west by the time. A direct contact between Kamba and Western seems to have started at a later stage, i.e. in the mid-1800s (see section 4.3.8). Incidentally, this may suggest that the first Kamba, who settled in Mumoni, approached the area from the north, as some oral traditions claim.

In any case, we can assume that long-term intense relations existed between Kamba speakers and the people living on the eastern foothills. Chesaina (1997: 4), for example, asserts that immigrants coming from the Kamba area were integrated into Embu society by marriage and adoption. Mwaniki (1973: 22) speaks of many intermarriages between Chuka and Kamba. Both Chuka and Kamba seem to have restructured their phoneme systems due to language contact: In Chuka, /b/ was introduced; in Kamba, /l/ was introduced. We cannot say for certain whether borrowing or shift caused this – in fact, neither may be ruled out. According to Thomason and Kaufman (1988: 72), in a situation in which there are mixed households comprising speakers of different native languages, it is likely that structural features are affected both through borrowing and shift.

This section showed that there existed intense and long-term contact relations in pre-colonial Central Kenya, starting with the first immigration waves around 1500 AD. Most likely, the first group to have moved into the area were the Pre-Eastern, who were followed by the speakers of Pre-Western. These two groups must have come into contact in the 16th century

near Mumoni and, presumably, even further north, for example, in present-day Tharaka. From then on, they engaged in various social relations. Probably, some of the Pre-Western arrivals shifted to speaking Eastern. In the middle of the 17th century, the Pre-Kamba reached the Mumoni Hills and started to engage in social relations with the people living in the eastern foothills of Mount Kenya. Both borrowing and shift may be argued: Possibly, some eastern (and, possibly, western) speakers shifted to Kamba, while some Kamba speakers shifted to Eastern. At the same time, lexical diffusion due to borrowing may also have taken place.

4.3.5 Maasai Contact

Maasai contact can be distinguished in regard to different aspects: We may distinguish between (lexical) borrowing and (phonological) interference through shift. The former has impacted all varieties (see table 192 in section 3.4.2); the northeastern dialects of Meru are, however, affected most severely in lexical terms. In general, we may assume that lexical borrowing took place both before and after the Bantu speakers moved into the highlands. Interference through shift is only suggested for Western, Embu-Mbeere, and Kamba. This seems to be the most recent kind of Maasai contact in Central Kenya Bantu (about two decades after the first Bantu immigration).

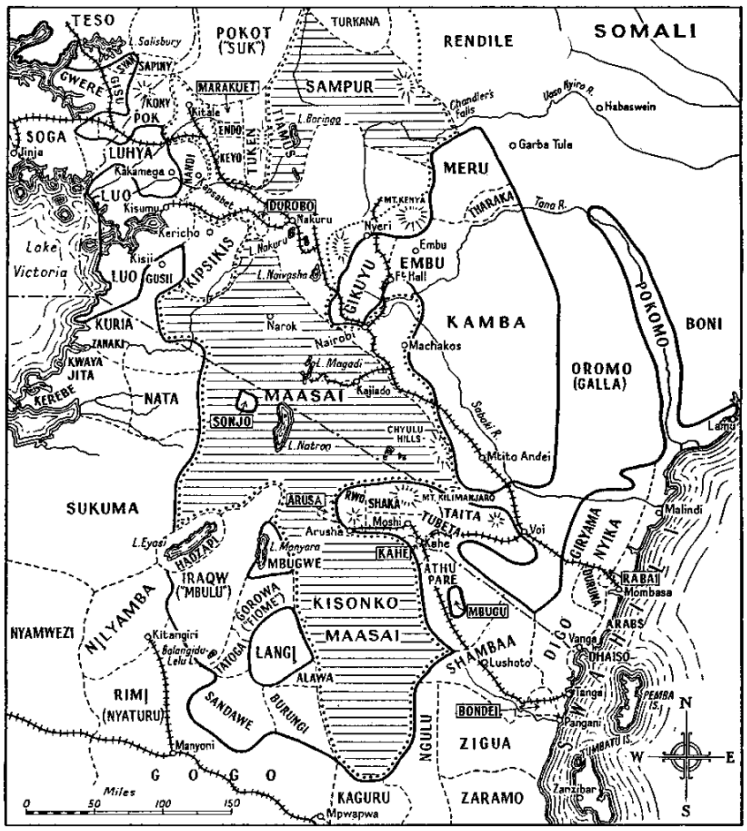
I pointed out in section 1.2.2 that the first Nilotic-speaking groups are said to have migrated south from Sudan and Ethiopia between the 15th and 17th century (Shillington 2012: 125). The migration of the Maasai and other Nilotic speakers into their current homeland was completed by the end of the 19th century (Ehlers 2010: 198). Possibly, all three clusters – Eastern, Western, and Kamba – were affected by lexical borrowing prior to their immigration. Widespread loans, such as *ngai* (*566 God*) or *kɪ.ŋa(:)ŋi* (*328 crocodile*) may origin from the pre-historical contacts between Bantu and Maasai.

Maasai loanwords are most prominent in the Meru dialects, i.e. in Imenti and Nkubu. From a semantic point of view, they seem to symbolize reciprocal social relations between the Meru and their Maasai neighbors. The oral traditions have it, that some clans in the Meru area used to engage in family relations with the Maasai, forming political, economic, and social alliances with their neighbors. Some of these clans, according to Nyaga (1997: 18), call themselves *Amaasai Ameru* even today. It is not surprising, therefore, that words like *mʊ.cɔ:rɛ* (*108 friend*) and *mu:ma* (*183 oath*) have made their way into these varieties.

As many oral traditions show (e.g. Middleton and Kershaw 1965; Mwaniki 1973), there used to be a great amount of social interdependence between the Maasai and their Bantu neighbors. These alliances were often established by swearing oaths as a pledge of allegiance when establishing 'brotherhoods', a custom that was also popular in colonial times among the Mau Mau fighters. In former times, apparently, the Bantu speakers were willing to adopt a number of Maasai customs, such as swearing these oaths or the bleeding of cattle (Odhiambo et al. 1977: 65). It is safe to assume that the prestige of Maasai, both as a culture and a language, must have been relatively high among the northern Bantu communities in the highlands. If this had not been the case, one could expect the Maasai to have taken over their neighbors' customs and not vice versa as it was the case. Bilingualism in these communities, i.e. being competent both in a Central Kenya Bantu language and Maasai, however, must have been relatively low. Conceivably, it was restricted to those clans that had family affiliations with the Maasai. If bilingualism, in contrast, had been widespread, one could expect to find a larger number of Maasai loanwords.

In short, the Maasai loanwords reflect two social facts: Some items, such as *043 blood*, *145 to answer*, *108 friend*, *183 oath* as well as *566 God,* suggest the cultural interdependence between the Maasai and their Bantu neighbors, with the former, possibly, being the dominant

party in terms of social prestige. A few additional items indicate that with cultural interdependence came along the exchange of goods and technology, e.g. *251 axe*, *302 shield*, and *390 honey*.
In the western dialects as well as in Kamba, in contrast, fewer Maasai loanwords than on the northeastern slopes can be identified. As Tucker and Mpaayei (1955) show (see map 9 below), the Maasai territory did, however, also border the area inhabited by the Gikuyu, Kamba, and Embu-Mbeere in former times. In this view, contact between these varieties and Maasai seems quite plausible and is, in fact, attested in a number of oral traditions.



Map of Maasai Area
— Bantu border line
.... Historical boundaries of the Maasai ←
Shaded area occupied by Maasai today

Map 9: Historical borders of the Maasai (Tucker and Mpaayei 1955)

Since hardly any Maasai vocabulary has made its way into Gikuyu, Embu-Mbeere, and Kamba, we may conclude that the prestige of Maasai in these Bantu communities was rather low (cf. Thomason and Kaufman 1988: 117). The more important impact Maasai has had on the languages in the west and south of Mount Kenya is found on the phonological level:
In all of these varieties, the prenasalized alveolar stops are voiced, while the remaining dialects (Eastern) also show voiceless, prenasalized plosives (see *Double Correrspondence Series* in section 3.1.2). In Maasai as well, this type of voicing is attested (Tucker and Mpaayei 1955, Heine 1980).
It is known from the oral traditions that contact with their Bantu neighbors was most beneficial for the Maasai in times of crisis. As pointed out in chapter 1.2.2, the Maasai, being pastoralists, were especially susceptible to natural disasters, such as rinderpest and other

bovine disease. Whenever crisis struck, the Maasai would try to send their women and children off into the custody of their agriculturalist neighbors, who would be less affected by the cattle-plague.
These refugees, driven to the Bantu area by poverty, as Muriuki (1974: 83 ff.) points out, of course, hoped to be ransomed in better times. In many cases, however, they ended up being married into their host societies, where they had to learn the relevant Bantu language. Since their native language does not allow Maasai speakers to pronounce voiceless prenasalized stops, they came to impose the Maasai voicing of these segments onto their second languages.
I argue that the Maasai refugees played a subordinate role when they entered their host societies of Gikuyu, Embu-Mbeere, and Kamba as solicitors: By being integrated into these communities, they had to learn the relevant Bantu language, as their mother tongue, Maasai, seems to have had relatively low prestige among the majority of Gikuyu, Kamba, and Embu-Mbeere at the time. If diglossia had been in favor of Maasai, we could expect to find more than just a few Maasai loans in the respective Bantu languages in the west and south of Mount Kenya (cf. Thomason and Kaufman 1988: 117).
I argue that the phonological interference in Western, Embu-Mbeere, and Kamba is a relatively recent phenomenon – more recent than lexical borrowing in all of Central Kenya Bantu. According to the oral traditions, the Pre-Western movement reached Mukurue wa Gathanga, mid-way between Nyeri and Murang'a, in the 17th century. This is supposed to be the center of dispersal of the different Gikuyu communities. A this time, a Gikuyu ethnic identity is said to have started emerging. From then on, the Gikuyu expanded northwards towards Nyeri and south into present-day Kiambu. Eventually, the Gikuyu expansion was contained by Maasai forces. By the time the British reached Mount Kenya in the early 1900s, Gikuyu expansion was still underway in some areas but then stopped once and for all by British intervention (cf. Dutto 1975).
In sum, we may assume that the Maasai substratum influence on Gikuyu took place sometime between the 17th and the late 18th century. Maasai shifting to Kamba may be dated at around the same time, i.e. after the Kamba had spread south from Mumoni into their present territory in the second half of the 18th century (Maxon and Ofcansky 2000: 105). Lexical borrowing from Maasai, in contrast, can be dated around 1500 AD and, possibly, even earlier.

4.3.6 Swahili Contact

Swahili is, by far, the most influential external donor language both in regard to the number of affected items and in distributional terms (see table 191 in section 3.4.2). Swahili is one of the most widespread languages in Africa. It is spoken by approximately 75 million people in eastern and central Africa, while there are only up to three million speakers of the original coastal varieties (Schadeberg 2009: 76). Swahili, especially the standardized variety of Kiunguja, is a lingua franca in large parts of East Africa; it is, therefore, no surprise that Central Kenya Bantu has been severely influenced by borrowing from Swahili. This study shows that a number of specifications can be made in respect to language contact with Swahili – in terms of both the distribution and the semantic background of the relevant items.
Kamba has been the major center of dispersal of precolonial Swahili items. The Kamba are said to have always been a rather mobile people (Middleton & Kershaw 1965). As Lindblom (1926: 4 f.) remarks, some Kamba even settled relatively far away from their home land, e.g. near Rabai on the Kenyan coast, where they were encountered by the German missionary Ludwig Krapf in the mid 19th century. It is easy to conceive that Kamba speakers have always been in relatively close contact with some of the coastal groups. Because of this fact, some Kamba soon became middleman between the upland communities and Swahili traders from

the shores of the Indian Ocean. In consequence, the Kamba enabled the societies of the Kenyan Highlands to participate in a vast economic network that spread from the East African coast to places as far as India, Persia, and the Arabic peninsula.
This circumstance has left substantial traces of Swahili contact in the Kamba language. Especially commodities, such as *200 window* or *413 hat*, as well as other concepts connected to trading, such as *378 money*, may have made their way into Central Kenya via Kamba. Swahili bilingualism, in turn, seems to have been relatively high among Kamba speakers, as a large amount of relevant loans, both nouns and verbs, are found in all kinds of different semantic domains. In most general terms, we may say that the incorporation of Swahili lexicon into Kamba reflects the introduction of previously unfamiliar cultural innovations. This gained a major momentum after the beginning of colonialism by the late 19th century. It is evident, however, that trade with coastal merchants seriously affected Kamba even in precolonial times. In contrast to Eastern and Western, many meanings referring to technology and handcraft in Kamba are influenced by Swahili. We may assume, therefore, that many open communicational networks between Kamba and coastal communities existed in pre-colonial times.
I showed in section 3.1.2 that the borrowing direction of some Swahili words may be determined on formal grounds: Swahili /s/ is normally received by Kamba speakers as /s/ [ʂ] (adaptation). This segment corresponds to /c/ in the montane varieties, e.g.:

(329)	247 bottle	Sw. *chupa*	>	*sʊba*	Kamba		adaptation
			>	*mʊ.cʊ:ba*	Mbeere	montane	adaptation
			>	*cʊʊba*	Tharaka		adaptation
			>	*cuba*	Gikuyu		adaptation

Example (329) indicates that the item *bottle* was first borrowed by Kamba, from where it was transmitted into the montane varieties. In other words, this item suggests that Kamba was the center of dispersion of precolonial Swahili.
With the set up of a colonial conquest state, the center of dispersion of Swahili vocabulary shifted from Kamba to the western area, that is home to the Gikuyu. In Gikuyu, Swahili /s/ is usually incorporated as /ð/ (integration). The items in (329) above show adaptation in Kamba as well as Eastern and Western. The following example, in contrast, shows integration in Western and Eastern, while only Kamba shows adaptation:

(330)	157 to learn	Sw. *-soma*	>	*-ðɔma*	Western	integration
			>	*-ðɔ:ma*	Eastern	integration
			>	-s*ɔma*	Kamba	adaptation

The fact that all varieties agree with Kamba in showing adaptation in example (329) suggests that the item *bottle* was originally transferred from Swahili via Kamba. In contrast, Eastern and Western agree in showing integration in (330), suggesting that the item *to learn* originally spread via Gikuyu, i.e. the western language area.
The western region between Mount Kenya and the Aberdares attracted many European settlers, missionaries and other colonialists. For the exploitation of this region, a modern infrastructure, i.e. roads, railways, and towns, were required to make the area accessible. This, in turn, drew an additional number of Europeans to settle in the area. Meanwhile,

missionaries from Europe started to take interest in the 'White Highlands', as the area was soon called by the British.
In most cases, these catechists set up a local churches accompanied by the establishment of a school. In these institutions, local children were instructed in a number of subjects, such as literacy training (see 1.2.2 for details). Since Swahili had already been widely known, the language was used in these local training facilities.
The fact that the area from Nairobi to Nyeri was among the first regions to be served by missionary schools is reflected by the fact that a number of Swahili items, e.g. *-ðɔma* (*157 to learn*) or *-tɛiðia* (*147 to help*), spread counter-clockwise from Gikuyu around Mount Kenya. In the context of trading, the western highlands also gained importance in the course of the colonial conquest. Swahili loanwords like *ðɔkɔ* (*372 market*) or *ðaa* (*522 time*), both most relevant in the capitalist context of colonialism, also made their way into Central Kenya via the Gikuyu language area. The establishment of a colonial legal system, furthermore, starting in places like Nyeri Town or Fort Hall, is also reflected in some Swahili loans that spread via Gikuyu (e.g. *175 lawsuit*, *179 to accuse*).
While Kamba seems to have been most important in precolonial contact with Swahili, the Gikuyu area began to overtake Kamba in this respect with the beginning of colonialism, e.g. during the building of the Uganda Railway around the turn of the century. In short, precolonial Swahili mostly spread via Kamba, while colonial Swahili was mainly transmitted via Gikuyu. In post-independence Kenya, Swahili remained an important language in all of Kenya, and due to the expansion of public education and the official status of the language, Swahili bilingualism can be considered to be at an all time high in contemporary Central Kenya.

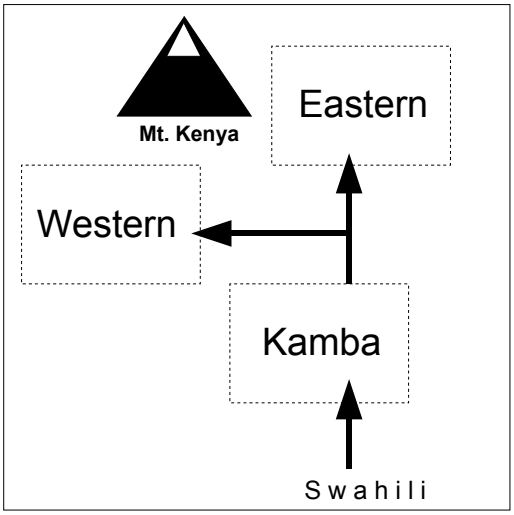


Figure 65: Precolonial Swahili

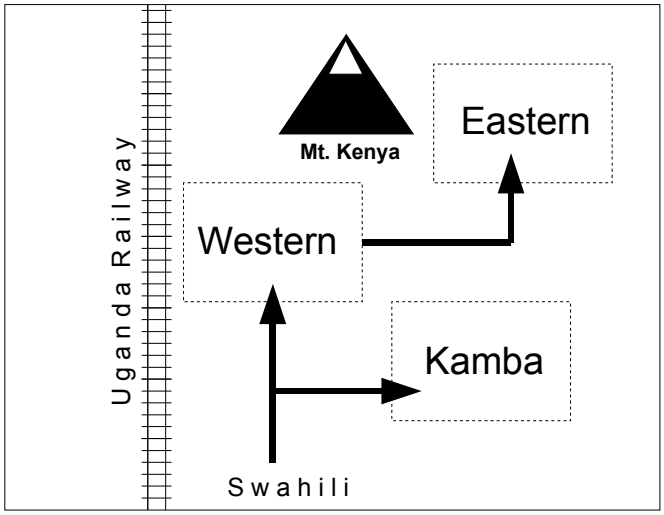


Figure 66: Colonial Swahili

4.3.7 English Contact

The lexical influence by English is considerably low. In total, only 14 entries show forms that are borrowed from English (see table 193 in section 3.4.2). This is insofar remarkable as English was not only the language of the colonial regime but has remained a vehicular and the official language of the Republic of Kenya after independence. In semantic terms, the relevant items mainly denote political and technological concepts from the time of

colonialism, e.g. *177 judge*, *205 room*, and *457 road*; they also include some terms connected to trade, such as *375 to exchange*, *376 debt*, and *474 number*.
There are several reasons why English impact is so low: On the one hand, the typological distance between English and Central Kenya Bantu may have disfavored widespread borrowing. For example, the English word *rail* is relatively difficult to articulate for Kamba speakers, as neither /r/ nor /l/ belong to their inherited sound system. Only a few Kamba speakers seem to have borrowed this word under the meaning *457 road.*
On the other hand, English has always been an elite language in Kenya. It is, for example, the instructional medium on the university level. English is also mainly used in political affairs and widely employed in Kenya's media. The rural population of the highlands, however, even today seems to be more comfortable speaking Swahili rather than English with their fellow countrymen from other parts of Kenya. In other words, English bilingualism seems not as widespread as Swahili bilingualism.
In distributional terms, Western has been most affected by English. The reason behind this may be two-fold: On the one hand, this might be due to the special interest the British government took in the western highlands. On the other hand, it may be due to the fact that the language data for Western have been elicited much later than the remaining data (see also section 1.3). Today, the influence of English may be on the rise, as it is in many parts of the world. Judging from the language data at hand, however, the impact English has had on the lexicon of Central Kenya Bantu thus far is relatively low.

4.3.8 Recent Internal Language Contact

In some semantic domains, however, English and, especially, Swahili have caused widespread lexical homogenization. I showed above in section 4.3.6 that precolonial Swahili seems to have spread via Kamba. Whereas Western is the center of dispersal of colonial Swahili and English loanwords. In the field 'Animals', for example, Embu-Mbeere and Western are united by a number of mutually borrowed Swahili items.
In precolonial times, lexical diffusion seems to have been more restricted in distributional terms, i.e. mostly adjacent varieties were affected by lexical homogenization. For example, genuine Kamba vocabulary has only spread into Eastern. In accordance with the historical accounts, we may argue that direct contact between Gikuyu (to be distinguished from Pre-Western) and Kamba is a relatively recent phenomenon: The Gikuyu are said to have spread into Kiambu as late as the early 20th century. The Kamba, in turn, are said to have come from the north (Mumoni), crossing Athi river in the mid-18th century and eventually spreading into their present territory (Middleton & Kershaw 1965: 68). Direct Gikuyu-Kamba contact seems to have happened at a later historical stage than, for example, contact between Kamba and Eastern. Before that time, Gikuyu and Kamba seem to have been separated by a relatively large area that was inhabited by Maasai (see map 9 in section 4.3.5 above).
As there is a general lack of isogloss bundles distinguishing Eastern and Western, we may not identify the exact donor of downhill diffusion into Kamba. However, direct downhill borrowing from Gikuyu into Kamba seems to date around 1850 AD onwards – before that time, the two groups were separated geographically. With the establishment of a colonial administration in the western highlands, Gikuyu has, possibly, gained prestige in the entire area and loanwords may have spread from Gikuyu into Kamba by that time.
We may not rule out that Gikuyu speakers shifted to Kamba at some point (which would be in line with the existence of bi-ethnic clans comprising both Gikuyu and Kamba); however, the administrational units established by the colonial regime generally disfavored cultural and inter-ethnic integration: With the establishment of 'chiefhoods', people started to identify with

their respective ethnic groups rather than the clans, a circumstance that characterizes Kenyan politics even today (see section 1.2.2). Therefore, we may assume from an extra-linguistic point of view that, at the most recent stage of internal language contact, downhill diffusion from Gikuyu into Kamba might have been primarily based on (prestige-motivated) borrowing rather than interference through shift. This argument is, of course, solely extra-linguistic. From a linguistic perspective, both borrowing and shift can be assumed.

It seems that the colonial administration facilitated the spread of certain word forms. In the field 'Law', for example, it introduced the concepts of *judge* and lawsuit, replacing genuine forms in some dialects: The former is expressed by English loans going back to *judge*; for the latter notion, Swahili loans going back to *mashtaka* are used today. At the same time, some genuine words were promoted, most likely through vernacular teaching.

In section 1.2.2 on the extra-linguistic background, I remarked that the educational sector is a relatively intransparent domain in Kenyan politics. Numbers on enrollment rates and graduates, for example, are far from reliable. This holds both for present-day public education as well as schooling in colonial times. Formal education in Central Kenya was mainly carried out by missionaries during British rule, and the establishment of local school was largely uncontrolled by the government. Even today, there seems to be substantial confusion on which kind of teaching material is used in different schools and how the instructional settings of primary school lessons are organized in general. For this reason, authoritative information on the specific history of education is relatively hard to come by.

One of the objectives of this study is, nevertheless, to find out whether the establishment of an official school system is any way reflected in the linguistic data. I argue that the language data enable us to not only draw conclusions on the distribution of certain lexical items used in vernacular school books, but we may also deduct claims on some semantic and socio-linguistic aspects.

The missionaries who set up stations in the early 1900s considered literacy to be key in the recruitment of new converts. For this reason, some of these preachers engaged in linguistic studies in order to be able to translate the Holy Bible into the local languages and provide vernacular teaching material. In independent Kenya, in turn, vernacular teaching was also favored by the government, resulting in the publication of a number of textbooks in Gikuyu, Kamba, Embu-Mbeere, and Meru. One of the most renowned publications is the acclaimed *Tusome Lugha Yetu* Series (TLY; Swahili for 'Let's learn our language'), presented by the Kenya Literature Bureau.

According to officials at the Kenya Institute of Education in Nairobi (interviewed in August 2012), areas not provided with their own school material mostly use textbooks published in one of the neighboring languages. In Tharaka, for example, Meru school literature is used. The actual practice of usage is, however, unclear, as teachers and parents, especially in remote regions, mostly depend on the relevant books available in local shops. Since there is little scientific material available on quality control of primary education in Kenya, I rely entirely on these books purchasable through the Kenya Literature Bureau in Nairobi or small books shops upcountry.

There is a large amount of lexical items in the data base that occur in the official teaching material. In order to investigate how schooling has influenced the distribution of these items, only such entries are considered that show some kind of variation under a specific meaning. In total, 29 meanings are identified that seem to indicate promotion by public education:

Item	Promoted form	Distribution	Reference
002 head	*kɪ.ɔngɔ* *mʊ.twɛ*	Gikuyu; Meru Kamba	Laughton 1961: 16; Wanjaũ 1989: 16 Mwende 2006: 74
003 brain	*tɔmbɔ*	Gikuyu	Wanjaũ 1989: 17
004 hair	*njʉ̱ːrɪ*	Gikuyu; Embu-Mbeere	Mũthoni 2010: 41; Kamau 2010: 61 Kĩmunyi 1998: 25;
005 forehead	*ʊ.ðiʊ* *ðiiði*	Embu-Mbeere Gikuyu	Kĩmunyĩ 1998: 25 Wanjaũ 1989: 17
009 chin	*kɪ.ŋɛðwa*	Kamba	Wanjaũ 1989: 16; Mũthoni 2007: 39
010 beard	*ndɛru*	Embu-Mbeere, Chuka	Kĩmunyĩ 1998: 25
016 lip	*mʊ.rɔmɔ*	Gikuyu; Embu-Mbeere	Wanjaũ 1989: 16; Kĩmunyi 1998: 25
017 tongue	*ʊ.ɪmɪ*	Kamba	Watuma 2008: 10
021 shoulder	*kɪ.andɛ, cɪ.andɛ*	Gikuyu	Mũthoni 2007: 39
031 ribs	*rʊ.baru*	Gikuyu	Wanjaũ 1989: 16
058 the dream	*kɪ.rɔːtɔ*	Gikuyu	Wanjaũ 1989: 21
259 rope	*ɪ.kanda*	Kamba	TLY Kamba Course Book 1: 31
290 cock	*nzamba*	Kamba	Mwende 2006: 14
310 animal	*ɲɔmɔ*	Meru	TLY Kimeru: 35
320 leopard	*kɪ.kɔyɔ*	Kamba	Mwende 2006: 23; Watuma 2008: 22;
321 lion	*ngatuŋi* *mʊ.ŋambʊ*	Eastern Kamba	TLY Kimeru: 25 Mwende 2006: 23
325 rat	*mbɪa*	Meru	Laughton 1999: 7
330 snake	*njɔka*	Kamba	Mwende 2006: 41; Watuma 2008: 3
342 bird	*ɲʊɲi*	Kamba	TLY Kamba Course Book 1: 16; Mwende 2006: 57
396 sugar cane	*kɪ.gwa*	Eastern, Western	Wanjaũ 1989: 23; Mũthoni 2007: 65; TLY Embu 1: 3
397 mango	*i.ɛmbɛ*	Gikuyu	Mũthoni 2007: 65
409 clothing	*ngʊa*	Kamba	TLY Kamba Course Book 1: 7
416 trousers	*mʊ.butɔ*	Kamba	Mwende 2006: 83
421 to plait	*-suka*	Kamba	Mwende 2006: 83
426 sun	*sʊa*	Kamba	Mwende 2006: 41
476 crowd	*nguðu*	Kamba	TLY Kamba Course Book 1: 29
479 alone	*-ɔnðɛ*	Kamba	TLY Kamba Reader 2: 8
522 time	*ka.binda*	Embu	TLY Embu 1: 31
530 today	*ʊ.mʊnðɪ*	Kamba	TLY Kamba 1: 34
565 grave	*kabuli*	Kamba	Mwende 2006: 9

Table 205: Words promoted by vernacular teaching

I argue that the impact of schooling has been especially great on lexical items that are only infrequently used. This corresponds to the assumption that horizontal processes are most effective, if a specific items is only rarely used in a speech community. Items such *037 anklebone* and *369 to dilute*, for example, both showing more than a dozen divergent forms,

attest to this observation – in both cases, internal or external borrowing is significant. The fact that the concept of 'knee' is attested in some varieties under the keyword *anklebone* shows that some speakers do not distinguish between these notions. The concept *to dilute*, in turn, may be assumed to be rarely used by the general public with the exception of specialists, such as smiths.

The distribution of some uncommon animal names, accordingly, seems to be influenced by local schooling. The average population of Central Kenya may be assumed to speak relatively little of such animals as *320 leopard* and *321 lion*, as the Kenyan Highlands provide no natural habitat for these predators. In Meru, the concept of *321 lion* is expressed by the word *ngatuŋi*, which prevails on the eastern slopes of Mount Kenya and is attested in the relevant textbook (TLY Kimeru: 25). In this instance, the retention of this genuine Meru form may be due to its use in school literature, while only a few locations show the Swahili loanword *cimba*. In Kamba, in turn, this concept is denoted by the two slightly divergent forms *mU.ɲambɔ* and *mU.ɲambU*. The latter is much more widespread than the former, a fact that seems to be due to its use in vernacular teaching (cf. Mwende 2006: 23). The form *mU.ɲambU* seems to have become a standardized word that may slowly replace the divergent variant *mU.ɲambɔ*.

In the case of *320 leopard*, Masaku-Kamba concurs with school literature, while the rest of Kamba uses a different form: For most of Kamba, the form *ngɔ* is attested, while Masaku-Kamba shows *kɪ.kɔyɔ*, which is used in the relevant school literature (Mwende 2006: 23) The area around Machakos Town seems to be a center of dispersion of standardized lexical forms in Kamba: If we find that two or more word forms compete over distribution in Kamba, the form used in vernacular books most often prevails in the Masaku dialect, from where it seems to spread. This is shown, for example, by the items *330 snake*, *342 bird*, *476 crowd*, and *530 today*. In chapter 1.2.2, I pointed out that the area of Masaku has one of the longest traditions of formal education, that goes back to the establishment of an early government school in Machakos Town in 1915. This specific historical circumstance seems to be reflected in the linguistic data in regard to the distribution of the relevant items.

Governmental involvement in the educational sector was, however, relatively low for the longest time of colonial rule (see section 1.2.2). Only in such areas that were not properly served by missionary institutions did the colonial regime set up public schools. The foothills of Mount Kenya have never been short-staffed in regard to missionary teachers. One of the most active groups in local schooling were the Consolata Fathers of Turin, Italy, who set up missions in the towns of Nyeri and Meru in the early 20th century. These two areas can be considered to be centers of dispersion of vernacular teaching. In the discussion of the semantic domains 'Law' and 'Social and Political Relations' in section 3.2.2, I pointed out that a number of items (e.g. *111 marriage* or *118 to obey*), that can be seen as typical of Catholic missionary work, spread from these two areas into the foothills of Mount Kenya.

Even contemporary school material, published by the Kenyan government, attests to this particular direction of diffusion. The item *310 animal*, for example, is expressed by the form *ɲɔmɔ* in Imenti, where Meru Town is located. From this area, the word has spread south into some locations on the eastern slopes. The form *kɪ.rɔ:tɔ* (*058 the dream*), in turn, prevails in the western dialects, competing over distribution with the divergent form *kɪ.rɔ:ta*. Again, this may be due to the use of the former item in vernacular school books of Gikuyu as well as Embu-Mbeere. A number of lexemes attest to this specific spread from the towns into the surrounding areas.

In sum, the hypothesis that vernacular teaching has influenced the languages and dialects of Central Kenya Bantu can be verified on the basis of the considerations above. The impact of local school teaching is most apparent in regard to distribution. In conclusion, the spread of the relevant items may be interpreted as follows:

First, the diffusion of these forms seems to be the linguistic manifestation of urbanization that started with the establishment of the first colonial towns that would soon host a number of mission societies. The teaching of local languages in these schools clearly affected the respective languages and dialects by causing lexical homogenization. This is especially evident in socially significant terms as well as in relatively scarcely used items, that may be assumed to be used more frequently in vernacular teaching than in daily life outside the schools. It is also evident that meanings typical of missionary work are particularly relevant.
As a second point, the linguistic homogenization caused by public schooling may also be interpreted in social terms. I pointed out in chapter 1.2.2 that the first missionaries in Central Kenya had a rather difficult time convincing the local population of the benefits to be gained from formal education. In other words, initial response to missionary work was poor. Later on, however, the local elite, i.e. especially the chiefs, began to send their children to European institutions to receive literacy training, which was required for a career with the colonial administration. After independence, public schooling was in generally high demand, and school education gained more and more prestige among the local population.
I argue that the spread of standardized word forms, as they are taught in primary schools, does not only have a distributional but also a social component: In terms of diglossia, we may assume that the individual speech of the educated class has been prestigious since the introduction of formal education. I noted in section 1.2.2, moreover, that there has always been a great amount of reciprocity between the towns and the surrounding rural areas. The towns were centers of education: Nyeri, for example, hosted about 10,000 local students in the 1970s (cf. chapter 1.2.2). Conceivably, these educated young people, who were eligible for a well-paid career in business or administration, may be considered to have been rather influential in linguistic terms. Within the framework of the social network model, these students may be viewed as the innovators of change (Milroy and Milroy 1985). As their lives centered around the schools in town, they may be assumed to have had only weak ties to their rural home communities (as opposed to the villagers who spent their entire life in the rural area). Their family and peers in their home villages, in turn, may be considered to have been early adopters, who were central in the rural networks. By following the example of the educated speakers from the towns, they may have adopted urban speech, eventually causing innovations to spread even throughout the rural communities (cf. Ross and Durie 1996).
In short, the privileged speakers may very well have been the vehicles of diffusion of the lexical items described in table 205. By following the example of the educated speakers, early adopters eventually spread the innovations originally promoted by schooling. Due to its prestigious social status, the urban elite may have contributed to lexical homogenization of Central Kenya Bantu even in rural areas.

4.4 Summary

The aims of this study are as follows: (1.) The quantitative analysis of the empirical language data is meant to answer the question to which extent the dialects and languages under scrutiny share their linguistic inventory. (2.) The qualitative analysis, in turn, aims at distinguish genetically inherited from diffused linguistic material. (3.) In a final step, the linguistic findings are correlated with extra-linguistic evidence from the oral traditions in order to catch a glimpse at the socio-historical processes in Central Kenya.
The quantitative analysis by means of dialectometrical calculations and multidimensional scaling showed that Central Kenya Bantu may be synchronically divided into three major clusters – Western Kirinyaga, Eastern Kirinyaga, and Kamba. The western cluster comprises all Gikuyu dialects (Kiambu, Murang'a, Nyeri, Mathira) as well as Ndia and Gichugu. The

remaining montane varieties from Embu-Mbeere in the southeast to Imenti in the northeast, including Tharaka, constitute the eastern cluster. Kamba – the most homogeneous cluster – may be divided geographically into Mumoni, Masaku and Kitui. The three-way split, i.e. there are relatively large lexical and phonological distances between the three major clusters, shows that Central Keny Bantu as a whole does not constitute a dialect continuum but rather a conglomerate of three major groups.

The three-way division seems to confirm the claims made by the oral traditions that Central Kenya Bantu has multi-regional origins rather than a common descend from an immediate proto-language. As the perspective of this study is primarily internal, I cannot make any claims on the origins of the different clusters. It is clear, however, that a common provenance of Western, Eastern, and Kamba is rather unlikely.

The major goal of this study was to distinguish inheritance from contact. This distinction was made on formal, distributional and semantic grounds. In general, formal aberrance and restricted distribution may indicate language contact. The claim that cultural vocabulary tends to get borrowed more than core-vocabulary seems to hold true for Central Kenya Bantu in general. However, due to the specific history of the language group, some items that are typically resistant to borrowing in the world's language are, in contrast, prone to diffusion in Central Kenya Bantu. Words relating to communication, for example, are generally resistant to borrowing in the world's languages. In Central Kenya, in contrast, many terms relating to speech have been affected by borrowing due to the influence by British colonialism, e.g. by the introduction of formal education or the establishment of a colonial legal system.

The meanings of lexical items may, in turn, enable us to correlate the linguistic findings with the history of Central Kenya Bantu. We find, for example, a number of common roots that unite all three cluster and seem to refer to an old East African cultivation culture that dates back to the time before the first Bantu migrants reached the highlands at around 1500 AD.

Next to inherited features, a number of contact processes have been identified in this study. They seem to reflect the particular history of migration and cultural interdependence both in precolonial times and after the establishment of British rule in the early 20th century. In some cases, they also reflect the geography of the region: For example, the eastern varieties located on the steep ridges of Mount Kenya show much more lexical variation and phonological complexity than Kamba, which is situated in the lower plains of eastern Central Kenya and seems less open to individual variation.

Early Bantu loans as well as Southern Cushitic and Nilotic material may have made their way into Central Kenya Bantu prior the first immigration waves. Contact with a presumably Cushitic speaking primordial highland population, moreover, may be the reason behind the Cushitic loans we can identify today. The Maasai, too, were among the earliest trading partners of the local Bantu immigrants. This is attested to by a number of loanwords, especially in the northeastern dialects. Regarding Maasai contact, we may also identify interference through shift: Apparently, Maasai speakers shifted to Gikuyu, Embu-Mbeere, and Kamba, most likely after the mid-1600s, eventually causing the loss of prenasalized voiceless plosives in these varieties.

The eastern dialects show a relatively large amount of internal variation based on divergence. On the one hand, this may be due to the mountain geography in this area. On the other hand, we may assume that Eastern Kirinyaga constitutes the oldest cluster that has undergone the longest duration of lexical and phonological divergence.

The second major wave of immigrants, according to the oral traditions, entered the highlands from the north gradually moving clockwise around Mount Kenya to eventually reach the Gikuyu area in the 17th century. At this point, the pre-Western communities lay the ffoundation of Gikuyu society. On their way, some of these migrants stayed behind to settle down in the region between Mumoni and Mount Kenya. The oral traditions attest to various

social relations between these migrants and the eastern groups, e.g. through intermarriages. The linguistic data seem to confirm this scenario. Not only is there a special connection between Eastern and Western shown by the lack of bundled isoglosses. It seems that the migrations paths of Pre-Eastern and Pre-Western crossed in a first phase of intensive contact in the eastern highlands. According to the oral traditions, this resulted in the emergence of multi-ethnic clans and mixed households due to intermarriages. Linguistic convergence between the two groups seems to attest to this scenario, which may be dated between the 16th and 17th century. The two clusters, Eastern and Western, nevertheless, are rather separate from a synchronic point of view and need to be considered to have been historically separate before the time of immigration into Central Kenya.

The Pre-Kamba entered the Kenyan Highlands in the mid-1600s, presumably first settling in the Mumoni Hills. The fact that genuine Kamba vocabulary has only diffused into Eastern may suggest that the Kamba originally came from the north. By the time they had started occupying Mumoni, various social ties with the Chuka, Embu and others were established. This is reflected in the relatively large amount of items that diffused downhill from Mount Kenya into Kamba. The opposite direction – uphill – is attested as well, however, on a much smaller scale. Even though we may not always specify the contact situation (borrowing or shift), it is evident that a great deal of language contact has taken place between Eastern and Kamba from the 17th century onwards.

Around that time, Kamba seems to have become a center of dispersion of Swahili loans. Regarding the number of affected items, Kamba has been influenced by Swahili to a greater extent than the remaining two groups. This may reflect the fact that the Kamba acted as middleman between coastal traders and the upland population. It also relates to the fact that some of the Kamba territory is characterized by plain land, which generally favors the development of open communicational networks.

With the beginning of colonial expansion in the late 19th century, the British took special interest in the western highlands. For example, the Uganda Railway connecting the coast with the Nyanza region was built by that time and towns with a modern infrastructure were established. In the course of these events, the Gikuyu area began to overtake Kamba as the center of dispersion of Swahili: Precolonial Swahili seems to have spread primarily via Kamba, whereas colonial Swahili was transmitted into Central Kenya via Gikuyu.

Colonial expansion seems to have had an additional homogenizing effect by the promotion of vernacular terms. With the establishment of a legal system and the introduction of formal education, a number of items from Swahili and English were introduced. Next to these loans, vernacular terms seem to have been promoted through missionary education and the colonial administration. The promotion of such terms and the introduction of colonial Swahili and English was somewhat institutionalized (whereas diffusion seems to have taken place on the individual level in precolonial times). Consequently, colonial Swahili has had a much stronger homogenizing effect in distributional terms than earlier diffusion of coastal loans. In the early contact phase (probably starting with the first immigration around 1500 AD), mostly adjacent dialects were affected by language contact. The most recent internal diffusion of Swahili and local terms is, in contrast, often widespread and connects all three groups or at least normally distinct varieties.

In sum, the synchronic three-way division suggests that Central Kenya Bantu has multi-regional origins. This confirms the picture of at least three major immigration waves painted by the oral traditions. After arrival in Central Kenya about 500 years ago, the different groups engaged in various socio-economic relations – first and foremost with each other but also with the neighboring Maasai and the presumably Cushitic speaking primordial inhabitants of Mount Kenya. This is attested to by the oral traditions and, to a certain extent, reflected in the linguistic data.

In sum, both the extra-linguistic evidence as well as the lexical and phonological material indicate that the history of Central Kenya may be described as half a millennium of slow migration of small groups, whose paths crossed repeatedly. In the course of time, a variety of social and economic relationships were established between the different groups.
When followed by social interaction and intensive language contact, such a migration pattern may result in the emergence of a *Sprachbund*, i.e. a linguistic area in which different – unrelated or only distantly related – languages show a number of reciprocal convergence processes (cf. Thomason and Kaufman 1988: 95 f.). This study showed that this seems to be the case in the Kenyan Highlands. Consequently, we may say that Central Kenya Bantu constitutes a *Sprachbund* within the panorama of the Bantu language family.

Appendix A: Phonology

(1) The Consonant Systems of Central Kenya Bantu

1. The consonant system of Kiambu, Murang'a, Nyeri, Mathira, Ndia, and Gichugu

	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Voiced stops	/b/					/g/	
Prenasalized voiced stops	/mb/		/nd/			/ng/	
Affricate			/c/				
Fricatives		/ð/			/y/		/ɦ/
Prenasalized voiced fricatives			/nj/				
Tap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

For the following phonemes distinctive phonetic realizations are to be noted:

/b/ is realized as a voiced, bilabial approximant [β].

/g/ is realized as a voiced, velar approximant [ɣ].

/c/ is realized as follows:

Kiambu, Nyeri, Mathira	voiceless, alveo-prepalatal affricate [tʃ]
Murang'a, Ndia, Gichugu	voiceless, alveolar fricative [s]

/nj/ is realized as a prenasalized, voiced, prepalatal fricative [nʒ].

2. The consonant system of Embu and Mbeere

	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Voiced stop						/g/	
Prenasalized stops	/mb/		/nd/			/ng/	
Affricate			/c/				
Voiced Fricatives	/v/	/ð/					/ɦ/
Prenasalized fricatives		/nð/	/nj/				
Flap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

For the following phonemes distinctive phonetic realizations are to be noted:

/g/ is realized as follows:

/g/_/i/ > [g] (voiceless, velar plosive)

/g/_/a, ɛ, ɪ, ɔ, u, ʊ/ > [ɣ] (voiced, velar approximant)

/c/ is realized as follows:

/c/_/i, u/ > [tʂ] (voiceless, dental, postalveolar affricate)

/c/_/a, ɛ, ɪ, ɔ, ʊ/ > [ʃ] (voiceless, alveolar fricative)

/mb/ is realized as follows:

Embu	/mb/_/i, u/ > [mv]	(prenasalized, voiced, labio-dental fricative)
Mbeere	/mb/_/a, ɛ, ɪ, ɔ, u, ʊ/ > [mb]	(prenasalized, voiced, labio-dental plosive)

/nj/ is realized as a prenasalized, voiced, postpalatal fricative [nʐ].

/r/ is realized as follows:

/r/_/i/ > [l] (alveolar, lateral approximant)

/r/_/a, ɛ, ɪ, ɔ, u, ʊ/ > [ɽ] (retroflex flap)

3. The consonant system of Chuka

	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Prenasalized, voiceless stops			/nt/			/nk/	
Voiced stops	/b/					/g/	
Prenasalized, voiced stops	/mb/		/nd/			/ng/	
Affricate			/c/				
Prenasalized affricate			/nc/				
Fricatives		/ð/			/y/		/ɦ/
Prenasalized fricatives		/nð/	/nj/				
Flap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

For the following phonemes distinctive phonetic realizations are to be noted:

/b/ is realized as a voiced, bilabial approximant [β].

/c/ is realized as follows:

/c/_/i, u/ > [tʃ] (voiceless, alveo-prepalatal affricate)

/c/_/a, ɛ, ɪ, ɔ, ʊ/ > [ʃ] (voiceless, prepalatal fricative)

/g/ is realized as follows:

/g/_/i/ > [g] (voiced, velar plosive)

/g/_/a, ɛ, ɪ, ɔ, u, ʊ/ > [ɣ] (voiced, velar approximant)

/nc/ is realized as a prenasalized, voiced, palato-alveolar affricate [ndʃ] (slightly affricated).

/nj/ is realized as a prenasalized, voiced, alveo-prepalatal affricate [ndʒ] (slightly affricated).

/r/ is realized as follows:

/r/_/i/ > [l] (alveolar, lateral approximant)

/r/_/a, ɛ, ɪ, ɔ, u, ʊ/ > [ɽ] (retroflex flap)

4. The consonant system of Imenti, Nkubu, Miutini, Igoji, Mwimbi, and Muthambi

	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Voiced stops	/b/					/g/	
Prenasalized voiced stops	/mb/		/nd/			/ng/	
Prenasalized voiceless stops	/mp/		/nt/			/nk/	
Affricate			/c/				
Fricatives		/ð/	/j/				/ɦ/
Prenasalized voiced fricatives		/nð/	/nj/				
Prenasalized voiceless fricatives			/nc/				
Flap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

For the following phonemes distinctive phonetic realizations are to be noted:

/b/ is realized as a voiced, bilabial fricative [β].

/g/ is realized as follows:

	Miutini	all other varieties
/g/_/a, ɛ, ɪ, ɔ, ʊ/ >	[ɣ] (voiced, velar, approximant)	[ɣ] (voiced, velar approximant)
/g/_/i/ >	[g] (voiced, velar plosive)	[g] (voiced, velar plosive)
/g/_/u/ >	[g] (voiced, velar plosive)	[ɣ] (voiced, velar approximant)

/c/ is realized as follows:

Imenti	Nkubu	Miutini	Igoji	Mwimbi	Muthambi
[dʃ]	[ʃ]	[ˀʂ]	[ˀʂ]	[ˀʂ]	[tʃ]
voiced, alveo-prepalatal affricate	voiceless prepalatal fricative	voiceless, glottalized, postalveolar fricative			voiceless, alveo-prepalatal affricate

/j/ is realized as follows:

Imenti	Nkubu	Miutini	Igoji	Mwimbi	Muthambi
[ʒ]	[ʒ]	[ʐ]	[ʒ]	[dʒ]	[dʒ]
voiced, prepalatal fricative		voiced, postpalatal fricative	voiced, prepalatal fricative	voiced, alveo-prepalatal affricate	

/nc/ is realized as follows:

Imenti	Nkubu	Miutini	Igoji	Mwimbi	Muthambi
[n^{d}ʃ]	[n^{d}ʃ]	[$n^{ˀ}$ʂ]	[ndʃ]	[ndʃ]	[ndʃ]
prenasalized, voiced, palato-alveolar affricate (slightly affricated)		prenasalized, glottalized, dental, postalveolar affricate	prenasalized, voiced, palato-alveolar affricate (fully affricated)		

/nj/ is realized as follows:

Imenti, Nkubu, Miutini	[nʒ] (prenasalized, voiced, prepalatal fricative)
Igoji, Mwimbi, Muthambi	[ndʒ] (prenasalized, voiced, alveo-prepalatal affricate)

/r/ is realized as follows:

	Imenti	Nkubu	Miutini	Igoji	Mwimbi	Muthambi
/r/_/a, ɛ, ɔ, ʊ/ >	[ɽ]	[ɽ]	[ɽ]	[ɽ]	[ɽ]	[ɽ]
/r/_/i/ >	[ɽ]	[ɽ]	[l]	[l]	[l]	[l]
/r/_/u/ >	[ɽ]	[ɽ]	[l]	[l]	[ɽ]	[ɽ]
/r/_/ɪ/ >	[ɽ]	[ɽ]	[ɽ]	[ɽ]	[l]	[l]

5. The consonant system of Tharaka

	Labial	Dental	Alveolar	Retroflex	Palatal	Velar	Glottal
Voiceless stops			/t/			/k/	
Prenasalized voiceless stops	/mp/		/nt/			/nk/	
Voiced stops	/b/					/g/	
Prenasalized voiced stops	/mb/		/nd/			/ng/	
Affricate			/c/				
Prenasalized affricate			/nc/				
Fricatives		/ð/			/y/		/ɦ/
Prenasalized fricatives		/nð/	/nj/				
Flap				/r/			
Nasals	/m/		/n/		/ɲ/	/ŋ/	

For the following phonemes distinctive phonetic realizations are to be noted:

/b/ is realized as a voiced, bilabial approximant [β].

/g/ is realized as follows:

/g/_/i, u/ > [g] (voiced, velar plosive)

/g/_/a, ɛ, ɪ, ɔ, ʊ/ > [ɣ] (voiced, velar approximant)

/c/ is realized as follows:

West-Tharaka	[ʃ]	(voiceless, prepalatal fricative)
East-Tharaka	[tʃ]	(voiceless, alveo-prepalatal affricate)

/nc/ is realized as a prenasalized, voiceless, alveo-prepalatal affricate [ntʃ].

/nj/ is realized as follows:

West-Tharaka	[$n^{d}ʒ$]	(prenasalized, voiced, alveo-prepalatal affricate, slightly affricated)
East-Tharaka	[nʒ]	(prenasalized, voiced, prepalatal fricative)

6. The consonant system of Kamba

	Labial	Dental	Alveolar	Palatal	Velar
Voiceless stops			/t/		/k/
Voiceless fricatives			/s/	/sy/	
Voiced fricatives	/b/	/ð/		/y/	
Affricate				/ky/	
Lateral approximant			/l/		
Nasals	/m/		/n/	/ɲ	/ŋ/
Prensalized stops	/mb/	/nð/	/nd/		/ng/
Prenasalized fricatives			/nz/		

For the following phonemes distinctive phonetic realizations are to be noted:

/b/ is realized as a voiced, bilabial approximant [β].

/s/ is realized as a voiceless, dental, postalveolar fricative [s̪].

/sy/ is realized as a voiceless, alveo-postpalatal fricative [ɕ^{y}].

/ky/ is realized as a voiceless, alveo-postpalatal affricate [^{t}ɕ].

/nz/ is realized as a prenasalized, voiced, alveolar fricative [nz̪].

(2) List of Recurrent Sound Correspondence Series

1a.	***C_1/_/a, ɛ, ɪ, ɔ, ʊ/**
1b.	***C_1/_/i, u/**
2.	***C_2**
3.	***C_3 (non-diagnostic)**
4a.	***G/_/a, ɛ, ɪ, ɔ, ʊ/**
4b.	***G/_/u/**
4c.	***G/_/i/**
5.	***J_1**
6.	**|*J_2 + i|**
7.	***J_3 (non-diagnostic)**
8.	***K_1**
9.	***K_2 (non-diagnostic)**
10.	***K_3 (Dahl's Law)**
11.	***M (non-diagnostic)**
12.	***MB_1**
13a.	***MB_2/_/a, ɛ, ɪ, ɔ, ʊ/ (non-diagnostic)**
13b.	***MB_2/_/i, u/**
14.	***MP_1**
15.	***MP_2**
16.	***N (non-diagnostic)**
17.	***NC_1**
18.	***NC_2**
19.	***ND (non-diagnostic)**
20.	***NG (non-diagnostic)**
21.	***NG' (non-diagnostic)**
22.	***NJ**
23.	***NK**
24.	***NT**
25.	***NY (non-diagnostic)**
26.	***P_1**
27.	***P_2**
28a.	***R_1/_/a, ɛ, ɔ, ʊ/**
28b.	***R_1/_/u/**
28c.	***R_1/_/i/**
28d.	***R_1/_/ɪ/**
29.	**|*R_2+ i|**
30.	***R_3**
31.	***T (non-diagnostic)**
32.	***W (non-diagnostic)**

(3) Lexical Attestations of Recurrent Sound Correspondence

CB	1a. *C_1/_/a, ɛ, ɪ, ɔ, ʊ/	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		tʃ	s	tʃ	tʃ	s	s	ʃ	ʃ	ʃ	tʃ	ˀʂ	ˀʂ	ˀʂ	ʃ	dʃ	tʃ	ʃ	ʂ	ʂ	ʂ
Maasai	094 to return	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x			
Maasai	108 friend									x	x	x	x	x	x	x	x	x			
Maasai	145 to answer	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x			
n.c.	162 to slap		x									x									
n.c.	173 to insult									x	x	x									
n.c.	177 judge			x		x		x	x	x									x	x	x
Swahili	200 window	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Swahili	224 to boil		x	x				x	x	x	x	x					x	x	x	x	x
*-cùng- 419	231 to strain	x		x				x	x	x									x	x	x
*-cúpà 426	247 bottle (Sw.)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-gèmbè 803 *-jèmbè 933	268 hoe (Sw.)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-cɲmbà 357	321 lion		x	x		x	x	x	x	x	x	x					x	x			
n.c.	342 bird							x	x										x	x	x
n.a.	366 to carve	x	x	x			x												x	x	x
Swahili	378 money	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	398 beans	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x
Swahili	408 rice	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	414 shirt	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
Swahili	417 to iron									x	x	x	x								
*-jìdà 940	456 path	x	x		x	x	x												x	x	x
Swahili	521 end	x	x	x	x	x	x	x	x		x	x		x							
		tʃ	**s**	**tʃ**	**tʃ**	**s**	**s**	**ʃ**	**ʃ**	**ʃ**	**tʃ**	**ʔʂ**	**ʔʂ**	**ʔʂ**	**ʃ**	**dʃ**	**tʃ**	**ʃ**	**ʂ**	**ʂ**	**ʂ**
n.c.	528 morning	x					x														
n.a.	558 to taste	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	579 narrow	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			

CB	**1b.** ***C$_1$/_/i, u/**	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		tʃ	**s**	**tʃ**	**tʃ**	**s**	**s**	**tʂ**	**tʂ**	**tʃ**	**tʃ**	**ʔʂ**	**ʔʂ**	**ʔʂ**	**ʃ**	**dʃ**	**tʃ**	**ʃ**	**ʂ**	**ʂ**	**ʂ**
n.a.	258 mirror	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x
n.c.	261 to hang up	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-cìmb- 338	267 to dig			x															x	x	x
n.c.	291 cat							x		x	x	x			x	x					
n.c.	300 to pierce	x	x	x			x														
*-yúmà 2162	368 iron (Sw.)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Swahili	395 orange	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	412 to plait												x	x	x	x			x	x	x
n.a.	531 tomorrow	x	x	x	x	x	x														
n.a.	552 to think	x	x	x	x	x	x	x	x	x	x	x	x						x	x	x

Swahili	**2.** ***C_2**	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ð	**ð**	**ð**	**ð**	**ð**	**ð**	**ʃ**	**ʃ**	**ʃ**	**tʃ**	**ˀʂ**	**ˀʂ**	**ˀʂ**	**ʃ**	**dʃ**	**tʃ**	**ʃ**	**ʂ**	**ʂ**	**ʂ**
ngozi	039 skin	x	x	x	x	x														x	
-shtaka	179 to accuse			x															x	x	x
raisi	379 cheap	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
suruali	415 shorts	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
soksi	418 stockings	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x

CB	**3.** ***C_3**	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ð	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**
*-cị́ú 347	005 forehead	x	x	x	x	x	x	x	x	x	x	x	x		x	x			x	x	x
dto.	006 face	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
dto.	007 cheek			x				x	x		x	x					x	x			
n.c.	008 jaw	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x			
*-yícòdị̀ 2031	012 eye	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-mócó 1316	025 left hand	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	032 chest	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x
n.a.	037 anklebone	x	x	x	x	x	x	x	x						x	x					
n.a.	054 to sneeze	x	x	x	x	x	x		x		x	x	x	x	x	x	x	x	x	x	x
n.c.	076 medicine									x	x	x	x	x	x	x	x	x	x	x	x
n.c.	079 to go	x	x	x	x	x	x	x	x	x	x								x	x	x

		Kiambu	**Muarɲa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ð	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**
n.c.	093 to follow							x	x	x	x	x	x	x	x	x	x	x			
*-càmb- 267	100 to swim	x	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	101 to jump												x	x	x	x	x	x			
n.a.	107 elder	x					x	x	x	x											
n.c.	113 husband	x	x		x		x														
n.a.	118 to obey	x		x	x			x			x	x	x	x	x	x	x	x			
*-pàcà 1407	128 twins	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	138 language		x		x			x		x		x		x					x	x	x
Swahili	147 to help	x		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	156 to teach	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Swahili	157 to learn	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
*-pị̀c- 1546	171 to hide	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	175 lawsuit	x	x	x	x	x	x	x		x			x	x	x	x	x				
n.c.	176 law	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x			
n.c.	179 to accuse		x	x				x		x	x	x	x	x	x	x	x	x			
n.c.	184 to command	x	x	x	x			x	x	x	x	x	x	x			x	x	x	x	x
*-cèk- 312	191 to laugh	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	192 to play	x	x	x	x	x	x	x	x	x	x	x	x	x							
n.a.	198 wall	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
n.c.	204 to enter								x	x	x	x	x	x			x	x			
*-cḭ́má 353	208 well	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
n.c.	213 to burn up								x		x	x	x	x	x	x	x	x			x

		Kiambu	**Muarɲa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ð	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**
n.c.	224 to boil	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sw.	225 metal pot	x	x	x	x	x	x	x	x												
*-cị̀d- 350	239 to grind	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	241 pestle	x	x	x	x	x	x		x								x	x	x	x	x
*-kèc- ps287	272 to harvest	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	276 stock			x									x	x	x	x	x	x	x	x	x
n.c.	279 to keep cattle	x	x	x	x	x	x												x	x	x
n.c.	280 to herd	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dác- 449	298 to shoot	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	331 lizard	x	x	x	x	x	x	x	x	x	x	x	x	x							
*-cúá 932	337 termite	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	344 wing	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	351 to finish												x	x	x	x					
n.c.	359 to turn	x		x			x												x	x	x
Sw.	372 market (Sw.)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
n.c.	376 debt	x	x	x	x	x	x	x	x										x	x	x
n.c.	427 to shine										x				x	x					
*-càngà 288	454 sand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-bícì 102	468 unripe	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-tandatu 1667	487 six	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	521 end								x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	**Muarɲa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ð	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**	**ð**
Sw.	522 time (Sw.)	x			x	x	x														
n.c.	526 daytime	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	535 angry									x	x	x	x	x	x	x	x	x			
n.c.	552 to think												x	x	x	x	x	x			
n.c.	564 to bury	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	581 light	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	583 bad										x	x	x	x	x	x	x	x	x	x	x
*-céd- ps85	584 clean	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	4a. *G/_/a, ɛ, ɪ, ɔ, ʊ/	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	Ø	Ø	Ø
*-gégó 802	018 tooth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-gùdù 884	036 foot	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pį́go 1549	049 kidney	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	055 to be tired	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	076 medicine							x		x	x	x	x	x	x	x	x	x	x	x	x
*-gènį̀ 805	109 guest	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dég- 521	148 to refuse	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	161 to quarrel									x	x	x	x	x							x
*-dég- 521	181 to deny	x		x	x	x													x	x	x
dto.	185 to forbid									x	x								x	x	x
n.c.	195 to get drunk																x	x	x	x	x
*-gùndà 897	209 garden	x	x	x		x	x	x	x	x	x	x	x						x	x	x
n.c.	253 sharp	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-gùndà 897	265 field		x	x			x												x	x	x
*-búdag- 184a	301 to kill	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-bògó 157	315 buffalo	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-tùìgà ps469	317 giraffe	x		x	x	x	x	x	x	x	x	x					x	x	x	x	x
n.c.	345 to fly							x	x										x	x	x
n.c.	363 to divide	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	373 to buy	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	Ø	Ø	Ø
n.c.	394 banana	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pį́gà 1548	443 rock	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x
dto.	451 stone	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-gòdò 842	532 yesterday	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	547 fatigue	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	555 noise	x	x	x	x	x	x	x	x	x	x	x							x		x
*-dòg 644	572 to bewitch	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	582 good	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	588 wisdom	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	598 sufficient	x	x	x		x	x	x	x	x	x	x	x				x	x	x	x	x
n.a.	599 suitable			x	x		x			x									x	x	x

CB	4b. *G/_/u/	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	g	g	Ø	Ø	Ø
n.a.	206 enclosure	x	x		x	x	x										x	x	x	x	x
*-dų́g- 734	221 to cook	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-jògų̀ 951	316 elephant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	344 wing	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	4c. *G/_/i/	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	g	g	g	g	g	g	g	g	g	g	g	Ø	Ø	Ø
*-gı̀mà 830	133 adult	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x
n.c.	207 fence		x	x				x		x							x		x	x	x
*-dı̀gò 614	275 load	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	571 sorcerer	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	5. *J_1	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		y	y	y	y	y	y	ʃ	ʃ	ʃ	dʒ	dʒ	ʒ	ʐ	ʒ	ʒ	tʃ	ʃ	ʂ	ʂ	ʂ
*-yı̀j- 2045	084 to come									x		x	x	x	x		x	x			
n.c.	097 to take	x	x	x	x		x	x	x										x	x	x
n.c.	126 boy							x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	232 to fill	x	x	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	274 to pick up	x			x			x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	313 horn										x	x	x	x	x	x	x	x			
n.c.	364 to lift	x		x	x	x	x														x
n.a.	366 to carve	x	x	x			x		x		x	x	x	x	x	x			x	x	x
n.a.	400 cassava										x	x	x	x	x	x	x	x			
n.a.	515 far	x		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	6. |*J₂ + i|	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		tʃi	si	tʃi	si	si	tʃi	ʃi	ʃi	ʃi	dʒi	dʒi	ʒi	ẓi	ʒi	ʒi	tʃi	ʃi	ɛʸ	ɛʸ	ɛʸ
*-bíád- 136	077 to give birth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	356 to pull	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	7. *J₃	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
n.a.	051 sweat										x	x	x	x							
n.c.	146 to ask for						x	x	x	x									x	x	x
*-yíb- 2020	169 to steal	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-yòyá 2141	312 fur	x	x	x	x	x	x	x	x	x							x	x			
n.c.	326 fish												x	x	x	x	x	x	x	x	x
n.c.	531 tomorrow								x	x	x						x	x			

CB	9. *K₂	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		k	k	k	k	k	k	k	k	k	k	k	k	k	k	k	ɣ	ɣ	k	k	k
*-tṵkù 1863	525 day	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
dto.	527 night	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	579 narrow	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	10. *K_3 (Dahl's Law)	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	k	k	k
*-kùtú 1243	014 ear	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-túúdì 1862	021 shoulder	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-bókù 158	022 arm	x	x	x	x	x	x												x	x	x
*-kókùdà 1130	024 elbow	x	x	x	x	x	x												x	x	x
n.c.	032 chest	x	x	x	x	x	x	x	x	x	x	x							x	x	x
n.a.	039 skin							x	x	x	x	x	x	x	x	x	x	x	x	x	x
Sw.	179 to accuse							x	x								x		x	x	x
*-kéká 290	244 mat	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	246 basket	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-teg- 1698	308 to fish														x	x			x	x	x
n.c.	356 to pull	x	x	x	x	x	x												x	x	x
n.a.	456 path	x	x		x	x	x												x	x	x
n.c.	476 crowd		x					x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-kụ̀à 1252	562 death	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-kù 1093	585 dirt	x	x	x	x	x	x												x	x	x

CB	12. *MB$_1$	Kiambu	Muaŋa	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
n.c.	362 to tear	x		x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pɨ́tɨ̀ 1652	319 hyena	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	14. *MP$_1$	Kiambu	Muaŋa	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	mb
*-pɨ́go 1549	049 kidney	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pépò 1492	569 coldness	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			

CB	15. *MP$_2$	Kiambu	Muaŋa	Nyeri	Mathira	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		mb	mb	mb	mb	mb	mb	mb	mb	mb	mp	mp	mp	mp	mp	mp	mp	mp	mb	mb	mb
n.c.	240 mortar										x	x									
Swahili	285 donkey					x		x	x	x	x	x	x								
*-pákà 1420	291 cat (Sw.)							x		x	x	x	x	x	x	x			x	x	x
n.c.	381 hunger										x	x	x	x	x	x					
*-pémbá 1475	406 maize	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	17. *NC$_1$	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		nʒ	nʒ	nʒ	nʒ	nʒ	nʒ	nz̩	nz̩	n^{d}ʃ	ndʃ	ndʃ	ndʃ	n^{ʔ}ʂ	n^{d}ʃ	n^{d}ʃ	ntʃ	ntʃ	nz	nz	nz
-jʊ́ídí 967	004 hair	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
n.a.	037 anklebone									x			x	x	x						
n.a.	277 barn													x	x	x					
n.a.	290 cock	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
-yúmà	368 iron							x	x	x	x	x	x	x	x	x	x	x			
n.c.	403 pepper									x		x	x	x	x	x	x	x			

CB	18. *NC$_2$	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ð	ð	ð	ð	ð	ð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð
*-cí 330	440 land			x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-yóncè 2123	479 alone	x	x	x	x	x	x												x	x	x
n.a.	537 mercy	x	x	x	x	x	x	x	x												
*-cónị̀	542 shame	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x

CB	22. *NJ	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		nʒ	nʒ	nʒ	nʒ	nʒ	nʒ	nz̩	nz̩	$n^dʒ$	ndʒ	ndʒ	ndʒ	nʒ	nʒ	nʒ	nʒ	$n^dʒ$	nz	nz	nz
n.c.	022 arm							x	x	x	x	x	x	x	x	x	x	x			
n.a.	051 sweat										x	x									
English	177 judge							x	x		x	x	x	x			x	x			
Swahili	265 field										x								x	x	x
n.c.	267 to dig	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-jògʉ̀ 951	316 elephant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-jókà 952	330 snake							x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	331 lizard	x	x	x	x	x	x														
*-júkì 962	335 bee	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
English	375 to exchange	x	x	x	x	x	x		x	x	x										
*-jàdà 917	381 hunger (Sw.)		x																x	x	x
n.c.	431 star	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x				
*-jìdà 940	456 path		x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	488 seven	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	582 good	x	x	x	x	x	x							x	x	x			x	x	x
*-yídù 2037	590 black	x		x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x

CB	14. *NK	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ng	ng	ng	ng	ng	ng	ng	ng	nk	nk	nk	nk	nk	nk	nk	nk	nk	ng	ng	ng
*-kị̀ngò 1086	020 neck	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-kúàpà 1171	023 armpit							x	x	x	x	x	x	x	x	x	x	x			
*-kódò 1115	045 heart	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	132 baby									x	x	x	x	x	x	x	x	x	x	x	x
*-nı́nk- 1363	150 to give							x	x	x	x	x	x	x			x	x	x	x	x
n.c.	160 quarrel							x	x	x											
*-kúị̀ 118	218 firewood	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-cùng- 419	231 to strain	x		x				x	x	x									x	x	x
n.c.	240 mortar							x		x											
*-ká 970	282 cow							x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	292 dog	x	x	x	x		x	x	x		x	x									
n.c.	320 leopard	x	x	x	x	x	x				x	x	x	x	x	x					
*-kángà 1010	346 guinea fowl	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	413 hat	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	438 thunder			x				x	x	x	x	x	x	x	x		x	x	x	x	x
n.a.	478 alone							x		x	x	x	x	x	x	x	x	x			
n.a.	517 different		x			x	x	x	x	x	x	x	x	x			x	x			
*-nụ̀nk-	549 to stink	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	23. *NT	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		nd	nd	nd	nd	nd	nd	nd	nd	nt	nt	nt	nt	nt	nt	nt	nt	nt	nd	nd	nd
n.c.	004 hair																x	x			
n.c.	005 forehead														x	x					
n.c.	033 breasts	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	060 blind			x	x	x		x	x	x	x	x	x	x	x	x					
n.c.	090 to squat							x	x	x							x	x	x	x	x
n.c.	116 mother												x	x	x						
n.c.	215 smoke	x	x	x	x	x	x	x	x	x							x	x			
n.c.	240 mortar	x	x		x		x	x	x			x	x	x	x	x	x	x	x	x	x
*-dòndò 706	249 hammer	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
n.c.	251 axe														x	x					
n.a.	285 donkey	x									x	x	x	x	x	x	x	x			
n.c.	300 to pierce							x	x	x	x	x	x	x	x	x	x	x			
*-tùìgà ps469	317 giraffe	x			x		x	x	x	x	x	x					x	x	x	x	x
*-yótà 2137	387 thirst							x	x	x			x	x	x	x					
n.c.	398 beans							x		x											
n.c.	423 darkness	x	x	x	x	x	x	x	x	x	x	x	x								
*-tàká 1649	453 mud						x	x	x	x	x	x	x	x	x	x			x	x	x
pa+*ntù	458 place	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		nd	**nd**	**nd**	**nd**	**nd**	**nd**	**nd**	**nd**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nd**	**nd**	**nd**
n.c.	459 village									x	x	x	x	x	x	x	x	x	x	x	x
n.c.	474 number					x							x	x			x	x			
n.a.	476 crowd										x	x	x	x	x	x	x	x			
*-tʊ́kù 1863	525 day									x	x	x	x	x	x	x	x	x			

CB	**25. *P_1**	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɦ	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**v**	**v**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**β**
n.c.	027 palm of hand		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x			
*-píndí 1526	041 bone	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x
*-kɨ̀pà 1087	042 vein	x	x	x	x	x	x												x	x	x
n.a.	046 lungs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	054 to sneeze							x	x	x			x								
*-tápik- 1684	067 to vomit	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pód- 1656	075 to cure	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
n.c.	086 to rest	x	x	x	x	x	x	x	x												
n.a.	101 to jump								x	x											
n.c.	111 marriage	x	x	x	x	x	x	x	x	x	x	x									
n.c.	112 to marry	x	x	x	x	x	x														
n.a.	126 boy	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ɦ	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**v**	**v**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**β**
*-pácà 1407	128 twins	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x
n.c.	146 to ask for	x		x		x		x	x	x									x	x	x
*-pá- 1404	150 to give	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
n.c.	152 gift	x	x	x	x	x	x	x	x	x	x	x									
n.c.	162 to slap			x	x		x	x	x	x			x	x	x	x	x	x			
n.a.	163 to beat	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
*-pɨc- 1546	171 to hide	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x
n.c.	174 lie	x	x	x	x	x	x	x	x												
n.c.	187 to punish	x	x	x	x	x	x	x	x	x	x	x	x	x							
n.c.	202 to open	x	x	x	x		x	x	x									x	x	x	x
n.c.	203 to shut	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	211 to kindle	x		x						x							x	x	x	x	x
n.c.	213 to burn up				x			x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	217 to extinguish	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pígà- 1548	220 cooking stones	x	x	x	x		x	x		x	x										
*-táp-	227 to draw water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	238 to pound								x	x	x			x	x	x					
n.c.	252 knife	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-túúp- 1880	254 blunt	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-píagid- 1536	255 broom	x	x	x	x	x	x	x	x	x	x	x	x	x							

		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ɦ	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**v**	**v**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**β**
see 255	256 to sweep	x	x	x	x	x	x	x	x	x	x	x									
*-pànd- 1432	270 to plant	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x
n.c.	313 horn	x	x	x		x	x	x	x	x									x	x	x
n.a.	366 to carve	x		x			x												x	x	x
n.a.	370 to paint	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dìp- 589	377 to pay	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	385 satiated	x	x	x	x	x	x												x	x	x
n.a.	417 to iron	x	x	x	x	x	x	x	x	x				x	x	x	x	x			
*-pìnd- 1542	421 to plait	x	x					x	x	x	x						x	x	x	x	x
*-pépò- 1492	432 wind	x	x	x	x	x	x	x	x	x											
*-pụ̀ụ̀p- 1632	433 to blow	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-pènị̀- 1482	437 lighntning	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
*-pígà 1548	443 rock	x	x	x	x	x	x			x	x		x	x	x	x			x	x	x
n.c.	449 river									x	x	x	x	x	x	x	x	x			
*-pígà 1548	451 stone	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x
n.c.	458 place		x	x	x	x	x	x	x	x		x	x	x			x	x	x	x	x
n.c.	464 branch	x	x	x	x	x	x	x	x	x	x	x	x						x	x	x
*-pàká 1419	513 boundary	x	x	x	x	x	x	x	x	x	x	x							x	x	x
n.c.	514 line			x				x	x	x	x	x					x	x			

*-kụ́pí 1274	516 short	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	529 evening	x	x	x	x	x	x													
n.c.	581 light			x	x														x	x	x
*-pépò 1492	596 coldness	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	**26. *P_2**	**Kiambu**	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		β	**β**	**β**	**β**	**β**	**β**	**v**	**v**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**
*-kúàpà 1171	023 arnpit (Sw.)							x	x	x	x										
n.c.	032 chest												x	x	x	x	x	x			
n.c.	100 to swim					x		x	x		x	x					x	x			
n.c.	114 father			x			x	x	x	x	x	x	x	x	x	x	x	x			
Swahili	156 to teach		x																x	x	x
Swahili	225 metal pot	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				x
*-cúpà 426	247 bottle (Sw.)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	249 hammer									x									x	x	x
Swahili	250 matchet	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	343 feather							x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	355 to try									x		x	x								
n.c.	385 satiated							x	x	x							x	x			
n.a.	416 trousers		x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	417 to iron									x	x	x	x								
Swahili	457 road		x	x		x					x	x	x	x	x	x			x	x	x
n.c.	456 leaf													x	x	x					

CB	27a. *R_1/_/a, ɛ, ɔ, ʊ/	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*-yúdù 2151	011 nose	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-mèdò 1295	019 throat	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-tụ́ụ́dị̀ 1862	021 shoulder								x	x	x	x	x	x	x	x	x	x	x	x	x
*-tádà 1640	027 palm (hand)	x		x																	x
*-yádá 1893	028 finger	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
dto.	029 fingernail	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-gùdù 884	036 foot	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dà 442	044 intestines	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-kódò 1115	045 heart	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dóót- 672	057 to dream	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dóóta 673	058 the dream	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dúád- 677	064 to fall ill	x	x	x	x	x	x	x	x	x	x	x							x	x	x
*-kóód- 1108	068 to cough	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-bị̀ad- 136	077 to give birth	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	088 to stand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-déét- 546	096 to bring					x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dùmè 697	113 husband		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dàngò 552	201 door (Sw.)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*-kádà 980	214 charcoal	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-kádang 982	222 to fry	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	224 to boil	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-búd- 184	301 to kill	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dúm- 696	311 to bite	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	329 python	x	x	x		x	x	x	x	x	x	x							x	x	x
*-yùdá 2150	333 frog	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-cádàkṳ 251	336 soldier ant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	353 work	x	x	x	x	x	x	x	x	x	x	x							x	x	x
n.c.	358 to put into	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	362 to tear	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-yùd- 2149	373 to buy	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	419 shoe	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	428 shadow	x	x	x	x	x	x	x	x										x	x	x
*-bṳ́dá 225	435 rain	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x
dto.	436 to rain	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	459 village							x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-mèd- 1293	460 plant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
dto.	461 to sprout	x	x	x	x		x	x	x	x	x	x							x	x	x
*-bòd- 153	470 to be rotten		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
n.c.	520 sign									x	x		x	x	x	x	x	x	x	x	x
n.c.	528 morning			x				x	x	x									x	x	x
*-gòdò 842	529 evening										x	x	x	x	x	x	x	x	x	x	x
dto.	532 yesterday							x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	571 sorcerer	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dòg 644	572 to bewitch	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	27b. *R_l/_/u/	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
n.c.	578 wide				x												x	x	x	x	x
*-bàdù 30	031 ribs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	073 blister													x	x	x			x	x	x
*-dụ̀m- 740	172 to curse	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
dto.	173 to insult	x		x	x	x	x	x	x				x	x	x	x	x	x	x	x	x
*-dụ́g- 734	221 to cook	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	446 cave	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	469 to ripen	x	x	x	x				x								x	x	x	x	x
n.c.	548 smell							x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-céd- ps85	584 clean	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-yídù 2037	590 black	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
*-yédù 1966	592 white	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	593 fat	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	28. |*R_2+ i|	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾi	ɾi	ɾi	ɾi	ɾi	ɾi	li	li	li	li	li	li	li	ɽi	ɽi	ɽi	ɽi	ɛʸ	ɛʸ	ɛʸ
*-pód- 1565	075 to cure							x	x				x	x	x	x	x	x	x	x	x
n.c.	217 to extinguish	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	232 to fill	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	261 to hang up	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CB	29. *R_3	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	l
Swahili	003 brain	x	x	x															x		
*-dòmò 651	016 lip	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dió 555	026 right hand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-kàd- 974	082 to remain		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	090 to squat							x	x	x	x	x	x	x			x	x	x	x	x

		Kiambu	**Muarŋa**	**Nyeri**	**Mathıra**	**Ndia**	**Gichugu**	**Embu**	**Mbeere**	**Chuka**	**Muthambi**	**Mwimbi**	**Igoji**	**Miutini**	**Nkubu**	**N-Imenti**	**E-Tharaka**	**W-Tharaka**	**Masaku**	**Mumoni**	**Kitui**
		ɾ	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**l**	**l**	**l**
n.c.	144 to ask	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dég- 521	148 to refuse	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	149 to permit	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	154 to look	x	x	x	x	x	x	x	x										x		
Swahili	155 to explain							x				x	x				x	x	x	x	x
n.c.	168 to chase																x	x	x	x	x
n.c.	179 to accuse					x													x		
*-dég- 521	181 to deny	x		x	x	x													x	x	x
dto.	185 to forbid									x	x				x				x	x	x
Swahili	200 window	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	225 metal pot	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-bùduk ps43	345 to fly							x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	364 to lift							x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	379 cheap	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	380 expensive	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
*-dió 554	383 food	x	x	x	x	x	x	x	x				x	x	x	x	x	x	x	x	x
-méd- 1249	384 to swallow	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	386 to belch	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.c.	403 pepper								x										x	x	x
Swahili	408 rice	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Swahili	415 shorts	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

		Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
		ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	l	l	l
Swahili	457 road		x	x		x		x	x		x	x	x	x	x	x	x	x		x	x
-dèngè 543	473 pumpkin	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
-tád- 1639	481 to count	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
-bìdì 114	483 two	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
English	514 line							x			x	x	x	x	x	x			x	x	x
Swahili	520 sign		x	x	x	x	x					x		x					x	x	x
n.a.	550 to remember	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	551 to forget	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
n.a.	552 to think	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x
Swahili	565 grave			x		x		x	x			x	x	x	x	x			x	x	x
n.a.	587 soft		x	x			x				x	x	x	x	x	x			x	x	x

(4) Feature Analysis of the Recurrent Sound Correspondence Series

1a. *C₁/_/a, ɛ, ɪ, ɔ, ʊ/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	tʃ	**s**	**tʃ**	**tʃ**	**s**	**s**	**ʃ**	**ʃ**	**ʃ**	**tʃ**	**ʔʂ**	**ʔʂ**	**ʔʂ**	**ʃ**	**dʃ**	**tʃ**	**ʃ**	**ʂ**	**ʂ**	**ʂ**
anterior	-	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	+
high	+	-	+	+	-	-	+	+	+	+	-	-	-	+	+	+	+	-	-	-
voice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
stop	+	-	+	+	-	-	-	-	-	+	+	+	+	-	+	+	-	-	-	-
dental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+

tʃ = voiceless alveo-prepalatal affricate; dʃ = voiced alveo-prepalatal affricate; s = voiceless alveolar fricative; ʃ = voiceless prepalatal fricative; ʔʂ = voiceless glottalized postalveolar fricative; ʂ = voiceless dental postalveolar fricative

1b. *C₁/_/i, u/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	tʃ	**s**	**tʃ**	**tʃ**	**s**	**s**	**tʂ**	**tʂ**	**tʃ**	**tʃ**	**ʔʂ**	**ʔʂ**	**ʔʂ**	**ʃ**	**dʃ**	**tʃ**	**ʃ**	**ʂ**	**ʂ**	**ʂ**
anterior	-	+	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
high	+	-	+	+	-	-	-	-	+	+	-	-	-	+	+	+	+	-	-	-
voice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
stop	+	-	+	+	-	-	+	+	+	+	+	+	+	-	+	+	-	-	-	-
dental	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	+	+

tʃ = voiceless alveo-prepalatal affricate; dʃ = voiced alveo-prepalatal affricate; s = voiceless alveolar fricative; ʃ = voiceless prepalatal fricative; ʔʂ = voiceless glottalized postalveolar fricative; ʂ = voiceless addental postalveolar fricative; tʂ = voiceless dental postalveolar affricate

2. *C_2

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ð	ð	ð	ð	ð	ð	ʃ	ʃ	ʃ	tʃ	ˀʂ	ˀʂ	ˀʂ	ʃ	dʃ	tʃ	ʃ	ʂ	ʂ	ʂ
anterior	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	+
high	-	-	-	-	-	-	+	+	+	+	-	-	-	+	+	+	+	-	-	-
voice	+	+	+	+	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
stop	-	-	-	-	-	-	-	-	-	+	+	+	+	-	+	+	-	-	-	-
dental	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	+

tʃ = voiceless alveo-prepalatal affricate; dʃ = voiced alveo-prepalatal affricate; ʃ = voicless prepalatal fricative; ˀʂ = voiceless glottalized postalveolar fricative; ʂ = voiceless dental postalveolar fricative; ð = voiced dental fricative

(3. *C_3)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð	ð

4a. *G/_/a, ɛ, ɪ, ɔ, ʊ/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	ɣ	Ø	Ø	Ø
Ø	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+

ɣ_ = voiced velar approximant

4b. *G/_/u/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɣ	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**g**	**g**	**Ø**	**Ø**	**Ø**
stop	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	n.a.	n.a.	n.a.

ɣ = voicless velar approximant; g = voiced velar plosive

4c. *G/_/i/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɣ	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**g**	**g**	**g**	**g**	**g**	**g**	**g**	**g**	**g**	**g**	**g**	**Ø**	**Ø**	**Ø**
stop	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	n.a.	n.a.	n.a.

ɣ = voicless velar approximant; g = voiced velar plosive

5. *J_1

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	y	**y**	**y**	**y**	**y**	**y**	**ʃ**	**ʃ**	**ʃ**	**dʒ**	**dʒ**	**ʒ**	**ʐ̩**	**ʒ**	**ʒ**	**tʃ**	**ʃ**	**ʂ**	**ʂ**	**ʂ**
anterior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
high	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
voice	+	+	+	+	+	+	-	-	-	+	+	+	+	+	+	-	-	-	-	-
stop	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-
dental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
pre	-	-	-	-	-	-	+	+	+	+	+	+	-	+	+	+	+	-	-	-
post	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-

y = voiced palatal fricative; ʃ = voiced prepalatal fricative; dʒ = voiced alveo-prepalatal affricate; ʒ = voiced prepalatal fricative; ʐ̩ = voiced postpalatal fricative; tʃ = voiceless alveo-prepalatal fricative; ʂ = voiceless dental postalveolar fricative

6. |*J_2 + i|

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	tʃi	**si**	**tʃi**	**si**	**si**	**tʃi**	**ʃi**	**ʃi**	**ʃi**	**dʒi**	**dʒi**	**ʒi**	**ʐi**	**ʒi**	**ʒi**	**tʃi**	**ʃi**	**ɕʸ**	**ɕʸ**	**ɕʸ**
anterior	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
high	+	-	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
voice	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	-	-	-	-	-
stop	+	-	+	-	-	+	-	-	-	+	+	-	-	-	-	+	-	-	-	-
pre	+	-	+	-	-	+	+	+	+	+	+	+	-	+	+	+	+	-	-	-
post	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	+

ʃ = voiced prepalatal fricative; s = voiceless alveolar fricative; dʒ = voiced alveo-prepalatal affricate; ʒ = voiced prepalatal fricative; ʐ = voiced postpalatal fricative; tʃ = voiceless prepalatal fricative; ɕ = voiceless alveo-postpalatal fricative

(7. *J_3)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	y	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**	**y**

(8. *K_1)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	k	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**

9. *K_2

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	k	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**k**	**ɣ**	**ɣ**	**k**	**k**	**k**
voice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
stop	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+

k = voiceless velar plosive; ɣ = voiced velar fricative

10. *K_3 (Dahl's Law)

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɣ	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**ɣ**	**k**	**k**	**k**
voice	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
stop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+

(11. *M)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	m	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**

12. *MB$_1$

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɦ	ɦ	ɦ	ɦ	mb	ɦ	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
anterior	-	-	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
stop	-	-	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
prenasal	-	-	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+

ɦ = voiced glottal approximant; mb = prenasalized voiced bilabial plosive

(13a. *MB$_2$/_/a, ɛ, ɪ, ɔ, ʊ/)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb

13b. *MB$_2$/_/i, u/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	mb	mb	mb	mb	mb	mb	mv	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb	mb
stop	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+
dental	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-

mb = prenasalized voiced bilabial plosive; mv = prenasalized voiced labio-dental fricative

14. *MP$_1$

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɦ	**ɦ**	**ɦ**	**ɦ**	**mb**	**ɦ**	**mb**	**mb**	**mb**	**mp**	**mp**	**mp**	**mp**	**mp**	**mp**	**mp**	**mp**	**mb**	**mb**	**mb**
anterior	-	-	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
voice	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	+	+	+
stop	-	-	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
prenasal	-	-	-	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+

ɦ = voiced glottal approximant; mb = prenasalized voiced bilabial plosive; mp = prenasalized voiceless bilabial plosive

15. *MP$_2$

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	mb	**mb**	**mb**	**mb**	**mb**	**mb**	**mb**	**mb**	**mb**	**mp**	**mp**	**mp**	**mp**	**mp**	**mp**	**mp**	**mp**	**mb**	**mb**	**mb**
voice	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	+	+	+

mb = prenasalized voiced bilabial plosive; mp = prenasalized voiceless bilabial plosive

(16. *N)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	n	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**	**n**

17. *NC$_1$

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	nʒ	nʒ	nʒ	nʒ	nʒ	nʒ	nʐ	nʐ	n^dʃ	ndʃ	ndʃ	ndʃ	$n^{ʔ}$ʂ	n^dʃ	n^dʃ	ntʃ	ntʃ	nz	nz	nz
anterior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
high	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
back	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-
voice	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	-	-	+	+	+
stop	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	-	-	-
dental	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
pre	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	-	-	-
post	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
slight	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-	-	-

nʒ = prenasalized voiced prepalatal fricative; nʐ = prenasalized voiced postpalatal fricative; n^dʃ = prenasalized voiced palato-alveolar slight affricate; ndʃ = prenasalized voiced palato-alveolar affricate; $n^{ʔ}$ʂ = prenasalized glottalized addental postalveolar affricate; ntʃ = prenasalized voiceless alveo-prepalatal affricate; nz = prenasalized voiced alveolar fricative

18. *NC$_2$

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ð	ð	ð	ð	ð	ð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð	nð
prenasal	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+

ð = voiced dental fricative; nð = prenasalized voiced dental fricative

(19. *ND)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

(20. *NG)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng	ng

(21. *NG')

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ	ŋ

22. *NJ

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	nʒ	**nʒ**	**nʒ**	**nʒ**	**nʒ**	**nʒ**	**nʐ̩**	**nʐ̩**	**n^{d}ʒ**	**ndʒ**	**ndʒ**	**ndʒ**	**nʒ**	**nʒ**	**nʒ**	**nʒ**	**n^{d}ʒ**	**nz**	**nz**	**nz**
anterior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
high	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	+	-	-	-
back	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
stop	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	+	-	-	-
pre	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	-	-	-
post	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
slight	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-

nʒ = prenasalized voiced prepalatal fricative; nʐ̩ = prenasalized voiced postpalatal fricative; n^{d}ʒ = prenasalized voiced alveo-prepalatal slight affricate; ndʒ = prenasalized voiced alveo-prepalatal affricate; nz = prenasalized voiced alveolar fricative

23. *NK

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ng	**ng**	**ng**	**ng**	**ng**	**ng**	**ng**	**ng**	**nk**	**nk**	**nk**	**nk**	**nk**	**nk**	**nk**	**nk**	**nk**	**ng**	**ng**	**ng**
voice	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+

ng = prenasalized voiced velar plosive; nk = prenasalized voiceless velar plosive

24. *NT

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	nd	**nd**	**nd**	**nd**	**nd**	**nd**	**nd**	**nd**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nt**	**nd**	**nd**	**nd**
voice	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+

nd = prenasalized voiced alveolar plosive; nt = prenasalized voiceless alveolar plosive

(25. *NY)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɳ	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**	**ɳ**

26. *P_1

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɦ	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**v**	**v**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**ɦ**	**β**	**β**	**β**
anterior	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	+	+	+
fricative	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
dental	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-

ɦ = voiced glottal approximant; β = voiced bilabial approximant; v = voiced labio-dental fricative

27. *P_2

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	β	**β**	**β**	**β**	**β**	**β**	**v**	**v**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**	**β**
fricative	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
dental	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-

β = voiced bilabial approximant; v = voiced labio-dental fricative

28a. *R_1/_/a, ɛ, ɔ, ʊ/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɾ	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**Ø**	**Ø**	**Ø**
back	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	n.a.	n.a.	n.a.

ɾ = alveolar tap; ɽ = retroflex flap

28b. *R_1/_/u/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaka	Mumoni	Kitui
	ɾ	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**l**	**l**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**Ø**	**Ø**	**Ø**
stop	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	n.a.	n.a.	n.a.
back	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	n.a.	n.a.	n.a.

ɾ = alveolar tap; ɽ = retroflex flap; l = alveolar lateral approximant

28c. *R_1/_/i/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	l	l	l	l	l	l	l	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
stop	+	+	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	n.a.	n.a.	n.a.
back	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	n.a.	n.a.	n.a.

ɾ = alveolar tap; ɽ = retroflex flap; l = alveolar lateral approximant

28d. *R_1/_/ı/

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɾ	ɾ	ɾ	ɾ	ɾ	ɾ	ɽ	ɽ	ɽ	l	l	ɽ	ɽ	ɽ	ɽ	ɽ	ɽ	Ø	Ø	Ø
stop	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	n.a.	n.a.	n.a.
back	-	-	-	-	-	-	+	+	+	-	-	+	+	+	+	+	+	n.a.	n.a.	n.a.

ɾ = alveolar tap; ɽ = retroflex flap; l = alveolar lateral approximant

29. |*R_2+ i|

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɾi	**ɾi**	**ɾi**	**ɾi**	**ɾi**	**ɾi**	**li**	**li**	**li**	**li**	**li**	**li**	**li**	**ɽi**	**ɽi**	**ɽi**	**ɽi**	**ɕ^{y}**	**ɕ^{y}**	**ɕ^{y}**
voice	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
stop	+	+	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	-
fricative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
back	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-

ɾ = alveolar tap; ɽ = retroflex flap; l = alveolar lateral approximant; ɕ = voiceless alveo-postpalatal fricative

30. *R_3

FEATURE	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	ɾ	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɾ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**ɽ**	**l**	**l**	**l**
stop	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-
back	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	-	-	-

ɾ = alveolar tap; ɽ = retroflex flap; l = alveolar lateral approximant

(31. *T)

	Kiambu	Muarŋa	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	t	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**	**t**

(32. *W)

	Kiambu	Muarnja	Nyeri	Mathıra	Ndia	Gichugu	Embu	Mbeere	Chuka	Muthambi	Mwimbi	Igoji	Miutini	Nkubu	N-Imenti	E-Tharaka	W-Tharaka	Masaku	Mumoni	Kitui
	w	w	w	w	w	w	w	w	w	w	w	w	w	w	w	w	w	w	w	w

Appendix B: Lexicon

(1) The Lexical Data

	Dialect	Location
E A S T E R N (1-44)	Imenti	1-2
	Nkubu	3-6
	Miutini	7-12
	Igoji	13-16
	Mwimbi	17-21
	Muthambi	22-25
	Chuka	27-30
	Embu	31-34
	Mbeere	35-39
	West-Tharaka	40-42
	East-Tharaka	43-44
K A M B A (45-97)	Masaku	45-55, 75-60, 61, 64-66
	Mumoni	75-81
	Kitui	56, 62, 63, 67-74, 82-97
W E S T E R N (98-105)	Nyeri	98-100
	Kiambu	101
	Murang'a	102
	Mathira	103
	Ndia	104
	Gichugu	105

001 body (mwili)

1.	mʊ.ɪ:rɪ	A_1	1-33c, 38a-44c
2.	mʊ.ɪ:ri	A_2	34a-37
3a.	mw.ɪɪ	A_3	45-97
3b.	mw.ɪrɪ	A_3	98-105

All forms are related to CB *-bìdì C.S. 112. Both forms subsumed under A_3 are treated as identical (*R_1/_/ɪ/ > /Ø/ in Kamba).

002 head (kichwa)

1.	kɪ.ɔngɔ	A_1	1-44c, 46, 49, 51, 52, 58, 68, 77, 78, 79, 98, 99, 100, 102-105
2.	ky.ɔngɔ	A_2	48, 55, 56, 59, 62, 71, 76, 83, 84, 90, 94, 96
3.	mʊ.tʊ̯ɛ	B_1	1, 3a, 7, 13
4.	mʊ.twɛ	B_2	45, 48, 50, 51, 53, 54-57, 59, 60, 61, 63-67, 69-75, 80-82, 84-89, 91-93, 95, 97, 101

The forms subsumed under A are treated as phonologically divergent, as some Kamba locations show palatalization of the class 7 noun marker (A_2). Both forms subsumed under B are related to CB *-túè C.S. 1808. The form A_1 is attested in vernacular text books of Meru (Laughton 1961: 16) and Gikuyu (Wanjaũ 1989: 16). The form B_2, prevailing in Kamba, is also attested in local school material (Mwende 2006: 74). It might have spread via vernacular teaching from Masaku into the other Kamba dialects.

003 brain (ubongo)

1.	ʊ.tɔmbɔ	A_1	1-44c, 72, 73, 78-82, 86
2.	tɔmbɔ	A_2	98, 99, 104
3.	w.ɔngɔ	B	49-52, 55, 57, 59-66, 68, 70, 71, 74-77, 85, 87, 88-90, 92-97
4.	kɪ.lɪkɔ	C	48, 53, 54, 58, 69, 91
5a.	akili	D_1	45, 46, 47, 67
5b.	akiri	D_1	100, 101
6.	ɲakili	D_2	102
7.	mɛsiria	E	105

Both forms subsumed under A are genuine to the dialects in the vicinity of Mt. Kenya, some Kamba locations in North-Kitui and Mumoni have borrowed these forms from the dialects on the slopes of the mountain. *tɔmbɔ* is the genuine Gikuyu form, used in school books (Wanjaũ 1989: 17), competing over distribution with the Swahili loan *akiri*. Form B is related to CB *-bòngó C.S. 169. Form C is a loan in Kamba of unkown origin. All forms subsumed under D are Swahili loans meaning 'mind, intellect'. In Kamba, this form prevails in the dialect of Masaku. Both forms subsumed under D_1 are treated as identical (*R_3 > /l/ in Kamba).

004 hair of head (nywele)

1.	ncʊʊri	A_1	1b, 3, 9
2.	nciʊri	A_2	1a, 7, 8
3.	nju̯ɪ:rɪ	A_3	11, 16a, 17-39, 99-105
5.	nzwɪɪ	A_4	45-97
7.	mʊ.tundu	B_1	2-6, 9-15, 16b
8.	ntundu	B_2	40-44

All forms subsumed under A are related to CB *-jʊ́ídí C.S. 967. However, as Möhlig (1974a: 111) suggests, the form A_3 might be the source word of the highly restricted forms A_1 and A_2. The two forms subsumed under B are restricted to locations in Imenti, Miutini, Igoji, and Tharaka on the eastern slopes of Mt. Kenya. Form A_3

shows relatively widespread distribution, which is possibly due its use in vernacular teaching in Gikuyu and Embu-Mbeere (Kĩmunyi 1998: 25; Mũthoni 2010: 41; Kamau 2010: 61).

005 forehead (kipaji)

1.	ʊ.ðiʊ	A_1	3, 6, 15-28, 32-34, 36-39, 102
2.	ʊ.ðyʊ	A_2	56, 65, 70, 72-80, 82-84, 86, 90, 91, 96, 97
3.	kɪ.rɛːra	B	1, 2, 7-26, 40-44
4.	kɪ.rɛːðiʊ	C	29, 30, 35
5.	ntɔŋɔ	D	4, 7, 8
6.	kɪ.tʊlɪa̱	E_1	45, 47, 49, 52-55, 58, 60, 61, 64, 67
7.	kɪ.tʊlya	E_2	48, 62, 68, 71, 69, 87, 88, 89, 90, 92-95
8.	ndʊlya	E_3	46, 57, 61, 63, 66
9.	tʊlya	E_4	81, 84
10.	ðiiði	F_1	98, 100, 101
11.	gɪ.ðiiði	F_2	104
12.	kɪ.ɔngɔ	G_1	103
13.	kɪ.ɔngɔ kɪa mbɛrɛ	G_2	105

The forms subsumed under A are related to CB *-cị́ú C.S. 347 'face'. All forms subsumed under E are loans in Kamba from a donor language that is not yet specified. The forms subsumed under F are restricted to Kiambu, Nyeri, and Ndia (cf. *009 chin*). The two forms subsumed under G, restricted to Ndia and Gichugu, also occur under the keyword *002 head*. Form A_1 is widespread in Embu and Mbeere, where it is used in vernacular text books (Kĩmunyĩ 1998: 25). Form F_1 is attested in Gikuyu school literature (Wanjaũ 1989: 17). According to Möhlig (1974a: 111), form C is a 'contamination' of the two forms A and B. All forms subsumed under E are loanwords of unknown origin.

006 face (uso)

1.	ʊ.ðiʊ	A_1	1-55, 58-60, 98-105
2.	ʊ.ðyʊ	A_2	56, 58, 61-63, 66-74, 76-97
3.	tʊlya	B	75

Both forms subsumed under A are related to CB *-cị́ú C.S. 347. One location in Kitui uses the loan *tʊlya* of unspecified origin (cf. *005 forehead*).

007 cheek (shavu)

1.	rʊ.ðɪa	A_1	21-25, 31-44, 105
2.	ðɪa	A_2	98
3a.	ɪ.kai	B	1-20, 26-30
3b.	i.kai	B	100, 102, 103
4.	ɪ.tau	C	45-67, 69-71, 73-97
5.	ndiri	D	99

None of the items listed here is cognate to CB. The forms subsumed under B are treated as identical, as class 5 /i-/ in Gikuyu, Ndia, and Gichugu corresponds to class 5 /ɪ-/ in the dialects on the eastern slopes of Mount Kenya. The form *i.kai* is attested in vernacular school books of Gikuyu (Wanjaũ 1989: 16; Mũthoni 2007: 40). Form A_1 also appears under the keyword *008 jaw*.

008 jaw (taya)

1.	rʊ.ðɪa	A	1-44c, 98, 101-104
2.	ʊ.kambuu	B	46-52, 56-97

3.	ʊ.b̲auʊ	C	53, 54

Form A also occurs under the keyword *007 cheek*.

009 chin (kidevu)

1.	kɪ.rɛru	A	1-28, 30-39, 42c, 43b, 99, 101, 102, 104, 105
2.	nkɔbu	B	29a, 29b, 40-44
3.	gɪ.ðiiði	C	98
4.	rʊ.ðɪa	D	103
5.	ngɔlu	E	45-67, 69-74, 82-90, 92-97
6.	kɪ.ŋɛðwa	F	68, 75-81, 91

Form A goes back to CB *-dèdù C.S. 520. Form B seems to be a loan in Tharaka and Chuka 29a and 29b. Form D also occurs under *007 cheek*. The relatively high diversity is due to different concepts involved: Form A also appears under the keyword *010 beard*, as does form F. The former is also attested in school literature (Wanjaũ 1989: 16; Mũthoni 2007: 39). Form C also occurs under the keyword *005 forehead*.

010 beard (ndevu)

1.	kɪ.rɛru	A_1	1-15, 17, 19-24, 40, 41, 43, 98-102, 104, 105
2.	ndɛru	A_2	16, 18, 25-39, 42, 44
3.	kɪ.ŋɛɛ	B_1	45-52, 55-59, 68, 81
4.	kɪ.ŋɛ^{g}wa	B_2	51, 53, 54, 59, 61, 63, 64, 67
5.	kɪ.ŋɛðwa	B_3	62, 65, 66, 69-77, 82-84, 87-97
6.	wɪa	C	78, 79, 86
7.	waka	D	103

The two forms subsumed under A are related to CB *-dèdù̩ C.S. 520. Form A_1 and B_3 also appear under the keyword *009 chin*. Form A_2, prevailing in Embu, Mbeere and Chuka, is attested in the relevant vernacular school literature (Kĩmunyĩ 1998: 25)

011 nose (pua)

1.	ɲʊ:rʊ	A_1	1-26, 40-44
2.	ɲʊ:ru	A_2	27-30
3a.	ɪ.ɲʊ:rʊ	A_3	31-33
3b.	ɪ.ɲʊʊ	A_3	56, 58, 61-97
4.	ɲʊ:rʊ ~ ɪ.ɲʊ:rʊ	A_4	34b-39
5.	ɲu:rʊ	A_5	34a+b
6.	i.niʊrʊ	A_6	98-105
7.	ɪ.nɪ̰ʊʊ	A_7	45-55, 57, 59, 60

All forms are related to CB *-yúdù C.S. 2151. Both forms subsumed under A_3 are treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). The reason for the high diversity is unclear.

012 eye (jicho)

1.	ri.iðɔ	A_1	1-44c, 98, 100-105
2.	iðɔ	A_2	45-97
3.	ndiri	B	99

Both forms subsumed under A are related to CB *-yícòdì̩ C.S. 2031.

014 ear (sikio)

1a.	gʊ.tʊ	A	1-44c, 98-105
1b.	kʊ.tʊ	A	45-97

Both forms are related to CB *-kùtú C.S. 1243. They are treated as identical, as Dahl's Law is only active outside Kamba (cf. *K_3).

015 mouth (kinywa)

1.	ka.ɲua	A_1	1-33, 35, 40-44
2.	ka.nua	A_2	34, 36-38, 98-105
3.	ka.ɲwa	A_3	45-97

All forms are related to CB *-nu̱à C.S. 1379 and treated as phonologically divergent.

016 lip (mdomo)

1.	mʊ.rəmɔ	A_1	1-44c, 99, 100, 103-105
2a.	kɪ.lɔmɔ	A_2	45-97
2b.	kɪ.rəmɔ	A_2	101, 198, 102
3.	i.rəmɔ	A_3	98

All forms are related to CB *-dòmò C.S. 651. The Kamba form *kɪ.lɔmɔ* is, however, irregular; it was borrowed from the other Central Kenyan Bantu languages. Both forms subsumed under A_2 are treated as identical (*R_3). The most widespread form A_1 is used in vernacular teaching (Kĩmunyi 1998: 25; Wanjaũ 1989: 16).

017 tongue (ulimi)

1.	rʊ.ʊmɛ	A_1	1-6, 8
2.	rʊ.rimɛ	A_2	7, 9-30, 35-44
3.	rʊ.rimi	A_3	31-34
4a.	ʊ.ɪmɪ	A_4	45-61, 63, 64, 67, 70, 73, 75-79, 81-85, 87, 88
4b.	rʊ.rɪmɪ	A_4	98-105
5.	w.ɪmɪ	A_5	72, 94
6.	u.ɪmɛ	A_6	62, 65, 66, 69, 71, 74, 80, 86, 89, 92, 95
7.	w.ɪmɛ	A_7	68, 90, 91, 93, 96, 97

There are three Common Bantu forms constructed by Guthrie for this item: *-dímì, *-dímè, and *-dímɨ̀ C.S. 571/572xy. This might explain the high diversity of the word forms above. Both forms subsumed under A_4 are treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). All differences occurring here are treated as phonological divergence. The Kamba form *ʊ.ɪmɪ* is used in vernacular school books (Watuma 2008: 10). Possibly, this form spread from Masaku into the other Kamba dialects by school education.

018 tooth (jino)

1.	ɪ.ɪgɔ	A_1	1-16
2a.	ɪ.gɛgɔ	A_2	16-44
2b.	ɪ.ɛɔ	A_2	45-62, 64-67, 69-73, 75, 77-79, 81-89, 95
2c.	i.gɛgɔ	A_2	99-105
3.	yɛːɔ	A_3	92, 93, 97
4.	ɪ.yɛyɔ	A_4	76
5.	yɪ.ɛɔ	A_5	68
6.	ma.ayɔ	A_6	74
7.	yɛːyɔ	A_7	90, 91, 94, 96

8.	yɪ.ɛyɔ	A_8	63
9.	ɪ.yɔɔ	A_9	80
10.	i.gɛra	B	98

All forms subsumed under A are connected to CB *-gègò C.S. 802. Only the forms subsumed under A_2 are, however, regularly derived from CB and treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). The other forms subsumed under A, showing restricted distribution, are loans in Kamba that presumably originate in the upper parts of Central Kenya.

019 throat (koo)

1a.	mʊ.mɛrɔ	A	1-44c, 98-102, 104
1b.	mʊ.mɛɔ	A	46 - 48, 51, 55, 57, 62, 67, 70-72, 77, 79, 86, 88, 95, 95
2.	mʊ.lʊkʊ	B_1	45, 49, 50, 52-54, 56, 58, 60, 61, 63, 66, 69, 73-75, 78, 80, 81, 82, 84, 85, 87, 89, 90, 91, 96, 97
3.	ɪ.lʊkʊ	B_2	64, 65, 76, 83, 93, 94
4.	gɪ.ðɔni	C	105

Both forms subsumed under A are related to CB *-mèdò C.S. 1295 and treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). The forms subsumed under B are loans of unknown origin.

020 neck (shingo)

1.	NKi:ngɔ	A	1-105

This form is related to CB*-kɟngò C.S. 1086 and either realized as *ngi:ngɔ* in Gikuyu, Ndia, Gichugu, Embu, Mbeere, and Kamba or *nki:ngɔ* in Chuka, Meru, and Tharaka (cf. *NK_1).

021 shoulder (bega)

1a.	gɪ.turɔ	A	1-35, 40-44
1b.	kɪ.tuɔ	A	45-97
2.	mɛ:ga	B	38, 39
3.	kɪ.andɛ	C_1	36-39, 99-104
4.	ci.andɛ	C_2	98, 105

Both forms subsumed under A are possibly related to CB *-tʊ́ʊ́dɟ C.S. 1862. They are treated as identical as class 7 /gɪ-/ in Meru, Chuka, and Embu regular corresponds to class 7 /kɪ-/ in Kamba (cf. *K_3 Dahl's Law). The forms subsumed under C are widespread in Embu, Mbeere, and the western dialects, possibly due to school teaching (e.g. Mũthoni 2007: 39).

022 arm (mkono)

1.	njara	A	1-44c
2a.	kʊ.ɔkɔ	B_1	45-47, 49-51, 53, 54, 57-60, 73, 77, 78, 81
2b.	gʊ.ɔkɔ	B_1	98-105
3.	kw.ɔkɔ	B_2	48, 52, 55, 56, 58, 61-72, 74-76, 79, 80, 83-97

All forms subsumed under B are related to CB *-bókò C.S. 158. Both forms subusmed under B_1 are treated as identical (cf. *K_3 Dahl's Law). Form A is possibly related to CB *-yádá 'finger' C.S. 1893.

023 armpit (kwapa)

1.	nkua:	A_1	1-16
2.	nkɔ:a	A_2	17-24
3.	nkuɔ:ba	A_3	25-30
4.	nga:bua	A_4	31-39

5.	nkɔ:a:	A_5	40-44
6.	nzakwaða	B_1	59, 60, 62, 63, 65-72, 74-79, 81-84, 86-88, 90-95, 97
7.	nʒwakwaβa	B_2	45, 47
8.	nzakwaβa	B_3	49, 55-58, 61, 64, 66, 96
9.	ndakwaða	B_4	73, 74
10.	nzakilya	C	80, 85, 89
11.	nzɛkɛnʒa	D_1	54
12.	nzɛkɛtʃa	D_2	48, 50
13.	nzɛkɛʃa	D_3	51, 53
14a.	nʒɛgɛkɛ	D_4	46, 98-105
14b.	nzɛkɛkɛ	D_4	52

The relatively high diversity of the items above is probably due to low usage of this concept. All forms subsumed under A are connected to CB *-kúàpà C.S. 1171. However, Swahili influence can not be ruled out. Both forms subsumed under D_4 are treated as identical (cf. $*K_3$ Dahl's Law). *nʒɛgɛkɛ* seems to be the genuine Gikuyu form, that was borrowed by a total of six locations in Masaku-Kamba.

024 elbow (kivi)

1.	nkankura	A_1	1b-6
2.	nkɔnkura	A_2	1a, 12
3.	nkɔnkurɔ	A_3	7-11
4.	nga:kura	A_4	40-44
5.	ki.ngɔkɔra	A_5	33
6a.	kɪ.kɔkɔa	A_6	45-48, 54, 55, 59, 60, 61, 64, 65
6b.	kɪ.gɔkɔra	A_6	98-105
7.	ngɔkɔa	A_7	57
8.	kɪ.ngɔkɔa	A_8	49-53, 56, 58, 63-66, 69, 87, 89, 90, 96, 94-97
9.	ngɔkɔla	A_9	62, 70-86
10.	ngɔkɔlya	A_{10}	67, 68, 88, 92, 93
11.	ndu	B_1	13-22, 27
12.	kɪ.ru	B_2	25, 26, 32, 35, 38, 39
13.	ndundu	B_3	28
14.	nduge	C	23, 24, 29, 30
15.	nkɔngɔ	D	31, 34, 36, 37

The relatively high diversity of the word forms above may be due to little usage of this concept (cf. *037 anklebone*). All forms subsumed under A may be connected to CB *-kókùdà C.S. 1130. Both forms subsumed under A_6 are treated as identical ($*R_1$ /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). The two forms A_9 and A_{10} are borrowed by Kamba from the languages uphill, probably from Gikuyu. The other Kamba forms A_6, A_7, and A_8 are derived from the CB item mentioned above. Kießling and Mous (2003: 340) list the form *gongooxi for Proto-Iraqwoid under the meaning 'elbow'. Ehret (1980: 245) lists the item *konkoolo ('ankle') for Proto-Southern-Cushitic. Possibly, all forms subsumed under A might, therefore, constitute 'areal roots'. The forms subsumed under B denote the term 'knee'.

025 left (hand) (mkono wa) kushoto

1.	ʊ.mɔðɔ	A_1	1-40, 42c, 74, 78, 82, 84, 98, 100-104
2.	kɪ.mɔðɔ	A_2	9, 14, 41-44, 51, 52, 55, 59, 62, 63, 69, 71, 73, 75, 76, 79, 81, 88, 92

3.	kwa aka	B	45-50, 53, 54, 56, 57, 58, 60, 64-68, 70, 71, 72, 80, 83, 85, 86, 87, 89, 90, 91, 93-97
4.	gʊ.sɔtɔ	C	105

The forms subsumed under A are related to CB *-mócó C.S. 1316. Form B goes back to CB *-ká 'wife' C.S. 970. Form C, restricted to Gichugu, is a loan from Swahili.

026 right (hand) (mkono wa) kulia

1.	ʊ.rɪɔ	A_1	1-44c, 98, 100-105
2.	ʊ.lyɔ	A_2	45-73, 76, 80, 83, 85-97
3.	-a.ʊmɛ	B	74, 75, 78, 79, 81, 82, 84

Form A_1 is related to CB *-dío 'food' C.S. 555 and borrowed by Kamba. Form B is related to CB *-dúmè 'male' C.S. 697.

027 palm (of hand) (kitanga)

1.	Kɪ.Pɪ	A_1	4, 7-44
2.	Rʊ.Pɪ	A_2	1-39, 98, 102, 103, 105
3.	kɪ.taa	B_1	45-61, 64, 65, 67
4.	kɪ.tala	B_2	63, 66, 68-87, 89-97
5.	kɪ.talawa	B_3	62
6.	kɪ.ara	C_1	99
7.	njara	C_2	101
8.	ky.aa	C_3	88

Form B_1 is related to CB *-tádà 'platform' C.S. 1640. Some locations in Yatta and Kitui (both Kamba) show *kɪ.tala(wa)*, a loan of unknown Bantu origin. All forms subsumed under C are connected to the keyword *028 finger*.

028 finger (kidole)

1.	kɪ.a̱ra	A_1	1-39, 98-105
2.	ky.aa	A_2	45-97
3.	ka.aːra	A_3	40-44

All forms are related to CB *-yádá C.S. 1893.

029 fingernail (kucha)

1a.	rʊ.kuŋʊ	A	1-44c, 104, 105
1b.	ʊ.kuŋʊ	A	62, 71, 73-84, 91
2.	w.aa	B_1	45-48, 50-61, 63-70, 72, 85-90, 92-97
3.	rw.aa	B_2	49
4.	rʊ.ara	B_3	98-103

All forms subsumed under B are related to CB *-yádá C.S. 1893. Both forms subsumed under A are treated as identical (*R_1 > /Ø/ in Kamba). Since the form *ʊ.kuŋʊ* shows relatively restricted distribution in Kamba, it is not unlikely that it was borrowed from the dialects in the vicinity of Mt. Kenya.

030 back (of body) mgongo

1a.	mʊ.gɔngɔ	A_1	1-30, 33a-c, 35-44, 98-105
1b.	mʊ.ɔngɔ	A_1	45-55, 57-69, 71-73, 77-86, 89, 92
2.	mw.ɔngɔ	A_2	56, 70, 74-76, 80, 83, 87, 88, 90, 91, 93-97

3.	mU.kurukuðu	B	31, 32, 34

All forms subsumed under A are related to CB *-gongo C.S. 858. Both forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba).

031 ribs (mbavu)

1a.	mbaru	A_1	1-44c, 98, 100, 102, 105
1b.	mbau	A_1	47, 50, 52, 59, 60
2.	rU.baru	A_2	99, 101, 103, 104
3.	w.au	A_3	45, 46, 49, 51, 53-58, 61-63, 66, 68-97
4.	U.au	A_4	48
5.	U.wau	A_5	64, 65, 67, 84

All forms go back to CB *-bàdù C.S. 30. The reason for the high diversity is unclear. The form *mbaru* in the western dialects seems to compete with *rU.baru* over distribution; the latter is attested in Gikuyu school literature (Wanjaũ 1989: 16).

032 chest (kifua)

1.	kɪ.bara	A	1-16, 40-44
2a.	kɪ.ðUri	B_1	17-39
2b.	kɪ.ðUi	B_1	45-97
3.	gɪ.ðUri	B_2	98-105

Both forms subsumed under B_1 are treated as regular (*R_1 /_/a, ɛ, ɔ, U/ >/Ø/ in Kamba). Form A is a loan of unknown origin.

033 breasts (maziwa)

1.	NYɔNTɔ	A_1	1-26, 31-44, 85, 98-105
2.	NɔNTɔ	A_2	27-30, 45-84, 86-97

The following forms are attested in Central Kenyan Bantu: *ɲɔntɔ* (Meru, Tharaka), *ɲɔndɔ* (Embu, Mbeere, Gikuyu, Ndia, Gichugu, Kitui-Central), *nɔntɔ* (Chuka), and *nɔndɔ* (Kamba).

036 foot, leg (mguu)

1a.	kU.gUrU	A	1-44c, 98, 100, 101, 104, 105
1b.	kUU	A	45-97
2.	kU.ɦUrUɔ	B	99
3.	i.kiŋa	C	102, 103

Both forms subsumed under A are treated as identical (*R_1 /_/a, ɛ, ɔ, U/ >/Ø/ in Kamba), they both go back to CB *-gùdù C.S. 884.

037 anklebone (fundo la mguu)

1.	ncUŋUrU, ncaŋUrU	A_1	3-5, 7-12
2.	ncuŋirU	A_2	13-15
3.	ncu:girU	A_3	26, 27
4.	ga.cu:girU	A_4	22-24
5.	ncUŋwa	B_1	17-21, 27-30
6.	(n)ðUŋwa	B_2	31-39, 98, 101
7.	nðUŋUðUŋU	B_3	1, 2, 6
8.	a.ðUŋwa	B_4	102, 105

9.	ka.ðʊŋwa	B_5	104
10.	ndʊgicʊ	C	40-44
11.	ngʊlimʊ	D_1	45, 48, 49, 54, 59, 61, 63-69, 71, 87-90, 92-96
12.	ngʊlimɔ	D_2	46, 47, 50, 51, 53, 55, 56, 57, 58, 60, 97
13.	ngɔkɔɔla	E_1	72, 86
14.	ngɔkɔa	E_2	52
15.	ngʊngʊlya	F_1	73, 82, 84
16.	ngʊngʊlwa	F_2	70, 85
17.	ngʊngʊlʊ	F_3	83
18.	gɪ.kɔgɔra	F_4	99
19.	ndalʊ	G	74, 91
20.	ngangasu	H	62, 75-81
21.	ngaðʊmʊri	J	100

The relatively high diversity is probably due to low usage. Both forms subsumed under D_1 are loans in Kamba as the occurrence of /l/ indicates. The same holds for E_1 and all forms subsumed under F_1 as well as for G. The forms subsumed under E and F, possibly, go back to Cushitic influence (see *024 elbow*). Some speakers appearently do not differentiate between the concepts of 'elbow' and 'ankle'.

038 heel (kisigino cha mguu)

1.	gɪ.tɛndɛ	A	1, 2, 7-11, 14, 17-25, 31-44, 100, 102, 105
2.	gɪ.takinɔ	B_1	3-6
3.	ga.taginɔ	B_2	12, 13, 15
4.	kɪ.taiɲɔ	B_3	65, 66, 69, 70, 72, 73, 77, 78, 79, 82, 83, 84, 91, 97
5.	kɪ.taɲɔ	B_4	74, 75, 85
6.	mʊ.taɲi	C	16a, 16b
7.	kɪ.ðuðɪ	D	26
8.	ncʊgirʊ	E	27-30
9.	kɪ.tiinɔ	F_1	46, 49-53, 58, 56
10.	kɪ.tiiɲɔ	F_2	45, 47, 48, 54, 55, 57, 59-61, 63, 64, 67, 68, 76, 80, 81, 86-90, 92-97
11.	kɪ.tiiɲʊ	F_3	62, 71
12.	kɪ.taiɲɔ	F_4	65, 66, 69-73, 77-79, 82-84, 91
13.	ðʊŋwa	G	98, 101

Form A goes back to CB *-téndé C.S. 1731. Again, the relatively high diversity is probably due to low usage and possibly also due to yet unspecified borrowing processes. G and E also appear under the keyword *037 anklebone*.

039 skin (ngozi)

1a.	gɪ.kɔndɛ	A	1-44c
1b.	kɪ.kɔndɛ	A	45, 46, 48, 49, 53-62, 64, 66, 69, 70-74, 77-89, 93-97
2.	kɪ.lʊa	B_1	67, 95
3.	ka.lʊa	B_2	91
4.	ʊ.ʊa	B_3	75, 76
5.	rʊa	B_4	105

6a.	ngɔðɨ	C	98-104
6b.	ngɔsi	C	68
7.	kɪ.ðuma	D	50-52, 56, 59, 63, 65

The two forms subsumed under A are treated as identical (cf. *K_3 Dahl's Law). They are common to all of Central Kenya Bantu with the exception of Gikuyu, Ndia, and Gichugu. The two forms B_1 and B_2 are loanwords in Kamba which have their origin in the Gikuyu dialects (cf. Benson 1975: 263). In these dialects, however, the original form was replaced by the Swahili loanword *ngɔðɨ*. The two forms subsumed under C are treated as identical (*C_2).

040 flesh (nyama)

1.	ɲama	A	1-105

All of Central Kenyan Bantu shows the same form derived from CB *-yàmà C.S. 1909.

041 bone (mfupa)

1.	mU.ɪndɪndɛ	A_1	1-9, 11, 12, 15
2.	MU.PɪNDɪ	A_2	10, 13, 14, 16-44
3a.	ɪ.bɪndɪ	A_3	45-97, 104
3b.	i.ɦɪndɪ	A_3	98, 99, 101, 102, 103, 105
4.	i.ɦɛmbɛ	B	100

All forms subsumed under A are connected to CB *-píndí C.S. 1526. The two forms subsumed under A_3 are treated as identical (*P_1 > /b/ in Kamba), as class 5 /ɪ-/ in Kamba regularly corresponds to class 5 /i-/ in Gikuyu, Ndia, and Gichugu. According to Möhlig (1974a: 117), form A_1 is spreading south from the northern Meru dialects Imenti and Nkubu.

042 vein (mshipa wa damu)

1.	MU.KIKA	A_1	1-44c
2a.	mU.kiba	A_2	45-47, 49, 50, 53, 56-59, 62-66, 68, 70-73, 76-79, 82, 83, 86, 104
2b.	mU.kiɲa	A_2	98-103, 105
3.	mw.ɪkiba	A_3	48, 51, 52, 54, 55, 60, 61, 67, 69, 74, 75, 80, 81, 83, 85, 88-96
4.	mw.ɪkyiba	A_4	97

All forms are related to CB *-kɨpà C.S. 1087. Form A_1 is, however, irregular. Both forms subsumed under A_2 are treated as identical (*P_1).

043 blood (damu)

1.	ðarikɛ	A	1-7, 10, 11, 13
2.	ndamu	B	5, 7-9, 12, 14-16, 19a, 20, 21, 23, 24, 25
3.	(n)ðakamɛ	C_1	17-44
4.	nðakamɛ	C_2	45, 48, 49, 52, 53-55, 57, 59, 61-67, 71, 73, 75, 80, 81, 86, 87-89, 92, 93, 96
5.	ðakamɛ	C_3	46, 47, 50, 51, 58, 60, 85, 98-105
6.	nzakamɛ	C_4	56, 68, 69, 70, 72, 74, 76-79, 82-84, 90, 91, 94, 95, 97

Form A, restricted to Imenti and some locations in Miutini and Igoji, is a Maasai loan from *o-sárgé* 'blood' (Tucker and Mpaayei 1955: 284). Form B, also showing restricted distribution on the eastern slopes of Mt. Kenya, is a Swahili loan. The aberrancies among the forms subsumed under C suggest additional borrowing relations. The relevant source word is **sakamɛ* of Southern Cushitic origin (Philippson 2013: 85).

044 intestines (matumbo)

1a.	ma.ra	A	1-44c, 98, 100, 101-105
1b.	maa	A	45-97
2.	maɦᴜ	B	99

Both forms subsumed under A are related to CB *-dà C.S. 442 and treated as identical (*R_1 /_/a, ɛ, ɔ, ᴜ/ >/Ø/ in Kamba).

045 heart (moyo)

1a.	NKɔRɔ	A	1-44c, 98-105
1b.	ngɔɔ	A	45-97

All of Central Kenyan Bantu shows forms that are related to CB *-kódò C.S. 1115. The following forms are attested, which are both treated as identical (*R_1 /_/a, ɛ, ɔ, ᴜ/ and *NK_1): *nkɔrɔ* (Chuka, Meru, Tharaka), *ngɔrɔ* (Gikuyu, Ndia, Gichugu, Embu, Mbeere), and *ngɔɔ* (Kamba).

046 lungs (pafu)

1.	MA.PURI	A_1	1-12, 40-44
2a.	MA.PᴜRI	A_2	13-39, 98-105
2b.	ma.bᴜi	A_2	45-97

Both forms subsumed under A_2 are treated as identical (*R_1 /_/a, ɛ, ɔ, ᴜ/ >/Ø/ in Kamba). The following forms are attested for Central Kenyan Bantu (cf. *P_1): *ma.ɦᴜri* (Igoji, Mwimbi, Muthambi, Gikuyu), *ma.vᴜri* (Embu, Mbeere), and *ma.βᴜi* (Kamba, Ndia, Gichugu).

047 to breathe (-pumua)

1.	-kuːja mɪ.rukɪ	A_1	1-14, 16-21, 29, 32a
2.	-kuːja rɪ.ɛːra	A_2	15, 36
3.	-bɛːba	B	22-28, 30-35, 37-39, 40-97
4.	-ɦuɦia	C_1	98-100, 102, 103, 105
5.	-ɦiɦia	C_2	101
6.	-nunua	D	104

Form B is related to CB *-pèèp- C.S. 1489, however, probably transferred uphill from Kamba. The verbs in the two items A_1 and A_2 also occur under the keyword *356 to pull*.

048 liver (ini)

1.	ɪ.tɛma	A	1-26, 31-38, 40-97
2.	kɪ.gɔːri	B	27-30, 35
3.	ini	C	98-105

Form A is related to CB *-tímà C.S. 1739. Form C, restricted to Gikuyu, Ndia, and Gichugu, is a loan from Swahili.

049 kidney (figo)

1a.	MPIGɔ	A	1-44c, 98-105
1b.	mbiɔ	A	45-97

All forms in Central Kenyan Bantu are somehow connected to CB *-pígo C.S. 1549 and treated as identical (*G/_/a, ɛ, ɪ, ɔ, ᴜ/ and *MP_1). The following forms are attested: *mpigɔ* (Meru, Tharaka), *mbigɔ* (Mbeere, Chuka, Ndia), *mvigɔ* (Embu), *ɦigɔ* (Gikuyu, Gichugu), *mbiɔ* (Kamba).

050 saliva (mate)

1.	ma.ta	A	1-105

All of Central Kenyan Bantu shows the same form derived from CB *-tá C.S. 1629.

051 sweat (jasho)

1.	rU.Ua	A_1	1-3
2.	rU.Uya	A_2	4-16
3.	njUya	A_3	17-26
4.	kU.ðiðina, nðiðina, ɪ.ðiðina	B_1	3, 27-39
5.	nðiðinɔ	B_2	7, 9, 25, 99, 100, 102-105
6.	kU.ðigina, ndigina	B_3	14, 20, 24
7.	ndiginɔ	B_4	18
8.	ðiðinɔ	B_5	98
9.	ðiginɔ	B_6	101
10.	ɪ.rUngU	C	40-44
11.	yuutɪa	D	45-97

According to Möhlig (1974a: 118), the notion of 'sweat' is somewhat taboo in the languages on the slopes of Mt. Kenya. Consequently, this item is scarcely used in these languages, which explains the relatively high diversity of the items above. In the Kamba dialects, no such cultural restriction seems to exist – one word form D is attested for all of Kamba. The forms subsumed under A, possibly, go back to Southern Cushitic **ruˀu* or **ruu'u* (Ehret 1980: 221).

052 to take a bath (-oga)

1.	-ðamba	A_1	1-44c, 98
2.	-ɪðamba	A_2	45-97, 99, 100-105
3.	-ɪ:ria	B	1-6, 12, 14, 38, 39
4.	-ɪ:cɪ:ria	C	40-44

Both forms subsumed under A are related to CB *-càmb- C.S. 267. All of Kamba and most of Gikuyu, Ndia, and Gichugu show reflexive usage. Form B is loan from the Maasai word *a-él* 'to smear with oil' (Möhlig 1974a: 118).

054 to sneeze (-piga chafya)

1.	-a:ðimUra	A_1	1-12, 15-26, 36-44, 99-105
2.	-aðimUa	A_2	45-97
3.	-TI:PA	B	13, 14, 17-35
4.	-mira	C	98

The two forms subsumed under A seem to originate from a Common Central Kenya Bantu Stratum. Under B, the following forms are subsumed: *-ti:ɦa* (Igoji, Miutini, Mwimbi, Muthambi, Chuka) and *-ti:va* (Embu).

055 to be tired (-choka)

1a.	-nɔga	A	1-44c, 98-105
1b.	-nɔa	A	45-97

Both forms are treated as identical (*G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba). They apparently originate from a Common Central Kenya Bantu Stratum.

056 to sleep (-lala)

1.	-ma:ma	A	1-44c
2.	-kɔma	B	45-105

057 to dream (-ota)

1.	-rɔːta	A	1-44c, 98-105
2.	-ɔːta	A	45-97

Both forms are related to CB *-dóót- C.S. 672 and treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba).

058 the dream (ndoto)

1a.	kɪ.rɔːtɔ	A_1	1-44c, 98, 100, 101, 104, 105
1b.	kɪ.ɔːtɔ	A_1	74, 80, 85
2.	kɻ.ɔːtɔ	A_2	77-79
3.	kʊ.rɔːta	A_3	99, 102, 103
4.	ndɔːtɔ	A_4	45-73, 75, 76, 80-84, 86-97

All forms are related to CB *-dóótà C.S. 673. Both forms subsumed under A_1 are treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). Form A_1 is attested in Gikuyu school literature (Wanjaũ 1989: 21). This form might be about to replace form A_3 in the western dialects.

059 snoring (-koroma)

1.	-gɔna	A	1-21, 27-34, 40-44
2a.	-ŋɔrɔta	B_1	3, 6, 31-39, 98-100, 102-105
2b.	-ŋɔɔta	B_1	59, 69, 80, 81, 83
3.	-ŋɔrɔtia	B_2	22-26
4.	-ŋɔlɔta	B_3	53, 55, 87
5.	-mɔrɔta	B_4	101
6.	kɪ.ŋɔɔ	B_5	45-52, 54, 56, 57, 58, 60-63, 66, 68, 70-79, 82, 84-86, 88-97

Both forms subsumed under B_1 are treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). The nominal form B_5 is regularly derived from the verb in B_1. The form B_3 in Kamba is a loan from Embu, Mbeere, or Gikuyu.

060 blind (kipofu)

1.	Mʊ.TUMUːMU, NTU.MUːMU	A_1	1-39, 98, 99, 100, 103, 104
2.	gɪ.tumuːmu	A_2	101, 102, 105
3.	ntʊngi	B	40-44
4.	kɪ.lalinda	C_1	45-56, 58-67, 69-74, 76-97
5.	kɪ.lilinda	C_2	57, 68, 75

In Central Kenya Bantu, the following forms subsumed A under are attested: *mʊ.tumu*:mu (Meru, Chuka, Embu, Mbeere), *ntʊ.muːmu* (Chuka, Meru), *ndʊ.muːmu* (Embu, Mbeere, Nyeri, Mathıra, Ndia), *gɪ.tumuːmu* (Kiambu, Muraŋa, Gıchugu). The two forms subsumed under C are loans of unknown origin.

063 sickness (ungonjwa)

1.	mʊ.rimɔ	A_1	1-6
2.	mʊ.rimɔ, mʊ.rimʊ	A_2	7-24, 28a, 32b, 33b, 36, 39a, 44a, 98, 100, 101, 104, 105
3.	mbaːjʊa	B_1	7, 9
4.	ʊ.aːjʊa	B_2	1, 3
5.	ndɻaːri	C_1	24, 25, 40-44
6.	ʊ.rɻaːru	C_2	26-39
7.	ʊ.^{g}wau	C_3	45-97

8.	kʊ.rʊra	D_1	99
9.	ʊ.kʊrʊara	D_2	103

All forms subsumed under C possibly go back to CB *-dúád- 'to fall ill' C.S. 667.

064 to fall ill (-ugua)

1.	-rʊ̱a:ra	A_1	17-19, 21-39
2.	-^{g}waa	A_2	45-97
3.	-rʊ:ara	A_3	98, 101-105
4.	-rʊra	A_4	99, 100
5.	-a:jʊa	B	1-16, 20, 40-44

All forms subsumed under A go back to CB *-dúád- 'to fall ill' C.S. 667. The nominalization of form B also occurs under the keyword *063 sickness*.

065 fever, cold (homa)

1.	ncɔ:ma	A_1	1-26, 40-44
2.	(n)jɔ:ma	A_2	32b, 35-39
3.	gɪ.cɔ:ma	A_3	27, 32a, 32b, 34, 39c
4.	ɦɔ:ma	A_4	31, 33, 98, 99, 102, 104, 105
5.	ɪ.cɔ:ma	A_5	33
6.	rʊ.tu:rwa	B	28
7.	mʊ̱.inainɔ	C	27, 29, 30
8.	ndɛtɛma	D	45, 51-56, 58-71, 74-76, 80, 83, 85, 87-97
9.	ʊ.rʊngarɪ	E	100, 101
10.	ɦɛɦɔ	F	103
11.	ɪ.kua 'cough'	G	46-48, 50, 57, 73
12.	kɪ.vuti 'pneumonia'	H	49
13.	kɪ.ðʊi 'chest'	I	72, 77-79, 83, 86

Form A_4, restricted to a few locations in Embu, Gikuyu, Ndia, and Gichugu, is a loan from Swahili. The other forms subsumed under A are possibly related, yet skewed, forms. Form D, prevailing in the Kamba dialects, is related to *066 to shiver* and goes back to CB *-tètim- 1276. Form F also occurs under the keyword *596 coldness*. Besides, in G, H, and I, specific terms are used to denote this concept.

066 to shiver (-tetemeka)

1.	-i:nai:na	A	1-30, 40-44, 98-103, 105
2.	-tɛtɛma	B_1	7, 9, 12, 22, 25, 28, 29, 31-39, 45, 46, 48, 54, 55, 62, 64, 68, 69-84, 86-89, 91-97
3.	-tɛma	B_2	90
4.	-ðɪ:lɪa	C_1	47, 49-51, 57-59, 65, 67
5.	-ðɪ:lʲa	C_2	56
6.	-ðɪ:lɪla	C_3	60, 61
7.	-lɪlɪa	C_4	52, 53, 55, 85
8.	-maka	D	104

Form B_1 is related to the noun *ndɛtɛma* (*065 fever, cold*), which is restricted to Kamba. It is possible, therefore, that the verb *-tɛtɛma*, which, apart from Kamba, shows widespread distribution in Embu and Mbeere, while being restricted to only few locations on the eastern slopes of Mt. Kenya, is borrowed from Kamba (cf. CB *-

tètim- 1276). All forms subsumed under C are, in turn, borrowed by Kamba from an unknown donor, as the occurrence of /l/ suggests.

067 to vomit (-tapika)

1.	-TAPɪKA	A	1-105

All forms are related to CB *-tápik- C.S. 1684. The following forms are attested (*P_1): *-tahıka* (Gikuyu, Chuka, Meru, Tharaka), *-tavıka* (Embu, Mbeere), and *-taβıka* (Kamba, Ndia, Gichugu).

068 to cough (-kohoa)

1.	-kɔɔra	A_1	1-3
2.	-kɔrɔra	A_2	4-44c, 98, 99, 101, 103, 104
3.	ʊ.kɔɔa ~ ɪ.kɔɔa	A_3	45-97
4.	-ɦaya	B	100, 102

All forms subsumed under A are related to CB *-kóód- C.S. 1108 (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba).

069 wound (jereha, kidonda)

1.	kɪ.rɔnda	A	1-44c, 98-103, 105
2.	kɪ.tau	B	45-97
3.	gʊ.ðiːðiʊ	C	104

Form A relates to CB *-dòndà C.S. 656.

072 to swell (-vimba)

1.	-imba	A	1-105

The form relates to CB *-bɟmb- C.S. 144.

073 blister (lengelenge)

1.	kɪ.aːru	A_1	1-12
2.	y.au	A_2	45-55, 57-61, 64, 65, 67, 69, 72-74, 76, 77, 79, 81-92, 94-97
3.	m.au	A_3	56, 62, 66, 71
4.	gɪ.tɔːɔ, gɪ.tɔːyɔ	B_1	7, 10, 13-44
5.	gʊ.tɔːya	B_2	25, 35, 39, 40
6.	ma.kʊndʊ	C	63
7.	kɪ.rɔruɦa	D	98, 100-103
8.	ndautiiɦiʊɔ	E	99
9.	nʊimbɔ	F	105
10.	kuma	G	68
11.	ɪ.vuavu	H	70, 78, 80

The stems of all forms subsumed under A correspond regularly (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). The items are, consequently, treated as morphologically divergent. The two forms subsumed under B are possibly Maasai loans going back to *a-toyú* 'to dry out, become rinkled' (Möhlig 1974a: 121).

074 scar (kovu)

1.	kɪ.rɛma	A_1	1-44c, 98, 100, 102, 103
2.	kɪ.rama	A_2	99
3.	ɪ.langa	B	45-51, 56, 58-97
4.	ʊ.ʊma	C	52, 53, 54, 57

Form B, as the occurrence of /l/ suggests, is a loanword in Kamba of unknown origin. Form C is the nominalization of the verb *311 to bite*. The two forms subsumed under A are common to all dialects on the slopes of Mt. Kenya.

075 to cure (-ponya ugonjwa)

1.	-PɔːRIA	A_1	1-16, 26-29, 33, 35, 36, 40-44
2.	-bɔsya	A_2	45, 48, 51-53, 59, 61-64, 66, 69-71, 73-75, 77, 78, 79, 81, 82-84, 87-97
3.	-bɔa	A_3	46, 49, 50, 54, 55, 85
4.	-PɔːNIA	B_1	18-20, 22, 30-34, 37-39
5.	-ɦɔnia	B_2	98, 100, 101, 105
6.	-ɦɔna	B_3	102, 103
7.	-ɦania	B_4	99
8.	-raːgiaːa, -raːgiðiːa	C	17, 19a, 21-25
9.	-iita	D	54, 55, 56, 57, 60, 65, 67, 68, 72, 76, 80, 81, 86

All forms subsumed under A are connected to CB *-pód- C.S. 1565. According to the dia-series $*P_1$, the following forms are subsumed under A_1: *-vɔːria* (33 Embu, 35 und 36 Mbeere) and *-ɦɔːria* (Imenti, Miutini, Igoji, Chuka, Tharaka). The two forms A_1 and A_2 are causative derivations of the above mentioned CB item. Form A_3 is directly derived from CB without a verbal extension being employed. According to the dia-series $*P_1$, the following forms are subsumed under B_1: *-vɔːnia* (Embu, Mbeere), *-ɦɔːnia* (Mwimbi, 22 Muthambi).

076 medicine (dawa)

1.	ndaːwa	A_1	1-15, 17-105
2.	ndawa	A_2	45-97
3a.	mʊ.ðɛːga	B_1	1-30, 32
3b.	mʊ.ðɛa	B_1	53, 54, 65, 87, 94, 95
3.	mʊ.ðɛɪga	B_2	40-44

The two forms subsumed under A are loans from Swahili. The forms subsumed under B_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba).

077 to give birth (-zaa)

1a.	-JIA:RA	A	1-44c, 98-105
1b.	-syaa	A	45-97

Both forms are treated as identical ($*R_1$ /_/a, ɛ, ɔ, ʊ/ and $|*J_2$ + i|). The following forms are attested: *-jiaːra* (Igoji, Mwimbi, Muthambi, Nkubu, Imenti), *-ciaːra* (Kiambu, Nyeri, Mathira), *-siaːra* (Murang'a, Ndia, Gichugu), and *-syaa* (Kamba). There seems to be a connection between these forms and CB *-bi̱ìd- C.S. 136.

079 to go (-enda)

1.	-ɪːta	A	1-15
2.	-ðiː	B_1	16-25, 46, 47, 49-51, 53-60, 62-92, 94-97
3.	-ðiɪ	B_2	26-39, 98-105
4.	-ɛnda	C	45, 48, 52, 61, 64, 93

The forms subsumed under B are also attested with the meaning *081 to leave*. Form C is a loan from Swahili.

081 to leave (-acha)

1a.	-tiga	A	1-44c, 98, 102, 104, 105
1b.	-tia	A	45, 47, 48, 50, 51, 54, 57, 58, 60, 62, 63, 64, 67, 68, 70, 71, 75-84, 87, 88, 92, 93, 94, 96

2.	-ɛka	B_1	49, 53, 56, 59, 61, 65, 66, 69, 73, 85, 90, 95, 97
3.	-ɛkana	B_1	72, 86
4.	-tʊra	C	99
5.	-ðiɪ	D	100, 103
6.	-ɛɦɛra	E	101

The two forms subsumed under A are related to CB *-tį́g- C.S. 1746 and treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). Form D also occurs as *080 to go*.

082 to remain (-kaa)

1.	-kara	A_1	1-16, 40-44
2a.	-ɪ.kara	A_2	17-39, 98-100, 102-105
2b.	-ɪ.kala	A_2	45, 46, 48, 53, 55, 57, 61, 62, 63, 65, 66-73, 76-82, 84-87, 92, 95, 96
3.	-ti^{g}wa	B_1	47, 49-51, 56, 59, 60, 74, 75, 83, 88, 89, 90, 91, 93, 94, 97
4a.	-tiala	B_2	52, 54, 58, 64
4b.	-tigara	B_2	101

The forms subsumed under A are related to CB *-kàd- 'dwell' C.S. 974. The two forms subsumed under A_2, both reflexives, are treated as identical (*R_3); the form A_2 in Kamba is a loan from the languages on the eastern slopes of Mt. Kenya. The forms subsumed under B are connected to CB *-tį́gad- C.S. 174 with the meaning 'to stay behind'. The Kamba form is a loan from a donor showing /r/, possibly the Kiambu dialect of Gikuyu.

083 to come from (-toka)

1.	-uːma	A_1	1-44c, 103-105
2.	-uma	A_2	45-97, 99
3.	-ʊma	A_3	101, 102
4.	-ʊka kuma	B	100

All forms are possibly connected to CB *-kṷ́m- C.S. 1262. Form B also appears under the keyword *084 to come.*

084 to come (-ja)

1.	-ɪːja	A	1-21
2.	-UJA	B	27-30, 40-44c
3.	-ʊːka	C_1	17-26, 31-39
4.	-ʊka	C_2	45-97, 98-105

The two forms A and B are possibly related to CB *-yìi- C.S. 2045. See also *083 to come.*

085 to arrive (-fika)

1.	-kiŋa	A	1-44c, 98-105
2.	-bika	B	45-97

Form B is related to CB *-pį̀k- C.S. 1550.

086 to rest (-pumzika)

1.	-nɔgɔka	A	1-30, 33a, 35-44
2a.	-vuːrʊka	B	31-39
2b.	-ɦuːrʊka	B	98-105
3.	-ðʊmʊa	C_1	45-69, 71, 72, 74-76, 85, 87-96
4.	-ðʊmwa	C_2	70, 73, 77-84, 86, 97

Both forms subsumed under B are treated as identical (*P_1). Form A is related to the verb *055 to be tired*.

087 to wait (-ngoja)

1.	-ɛːtɛɛra	A_1	1-16, 22-25, 31-44
2.	-ɛːtɛrɛra	A_2	17-21, 26-30
3.	-ɛtɛrɛra	A_3	98-105
4.	-ɛtɛɛla	A_4	45, 48, 51, 53-57, 59-68, 71, 74-83
5.	-ɛtɛɛa	A_5	50, 52, 58, 89, 90, 93, 95-97
6.	-ɛtɛɛlɛla	A_6	84, 94

All of Central Kenyan Bantu shows similar forms. The three forms A_1, A_2, and A_3 are regularly related to form A_5 in Kamba. The two forms A_4 and A_6 are loans in Kamba, borrowed from the dialects on the slopes of Mt. Kenya.

088 to stand (-simama)

1a.	-rʊngama	A_1	1-30, 33, 40
1b.	-ʊngama	A_1	45-97
2.	-rʊgama	A_2	31-39, 41-44, 98-105

The two forms subsumed under A_1 are treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba).

090 to squat (-chuchumaa)

1.	-ikarıra ma.gʊrʊ, -karıra ma.gʊrʊ	A	1-12, 27-34, 98, 103
2.	-umbara	B_1	7, 8, 10, 13-26
3.	-kumara	B_2	42, 44a
4.	-tuntumara	C_1	27, 30, 32b, 35, 39
5.	-cunjumara	C_2	36-39
6.	-ðuntumara	C_3	40, 41, 44b, 44c
7.	-sʊsʊmala	C_4	45, 54, 55, 58, 82, 84
8.	-sʊnzʊmala	C_5	48-53, 57, 59, 60, 61, 64, 65, 66, 67-70, 74, 75, 81, 83, 87, 88, 89, 90-97
9.	-tʊndʊmala	C_6	47, 56, 62, 63, 71-73, 76-79, 80, 86
10.	-skwɔti	D	100
11.	-isɔsɔma	E	102
12.	-sɔnjuma	F	104, 105

This items is difficult to elicit and compare, as the verb 'to squat' is ambigue in English having the two meanings 'to crouch' and 'to occupy'. Form A, possibly, also shows this ambiguity: It goes back to CB *-kàd- 'dwell' C.S. 974; *ma.gʊrʊ* in the Central Kenyan Bantu languages means 'feet' (cf. *036 foot, leg*). In this sense, form A literally means 'to sit on one's feet', i.e. 'to crouch'. The stem -*gʊrʊ*, however, also denotes different notions such as 'up (on sloping ground or surface)', 'upcountry', or the 'west' (Benson 1964: 130). It is possible, therefore, that form A may also be understood metaphorically, i.e. in the sense of dwelling in the upcountry ('the foot of the mountain') or the west representing the direction of expansion during the migration of the early Bantu settlers in Central Kenya.

The forms subsumed under C are similar to the relevant Swahili word. Since the Central Kenyan Bantu languages in which this forms occurs show /r/ or /l/, form C is, however, not borrowed from Swahili -*chuchumaa*. It is rather likely that the Kamba form C_6 was borrowed from Chuka or Tharaka. Form C_5, on the other hand, is most likely a direct borrowing from Mbeere. Form D is clearly an English loan, the two forms E and F are possibly borrowed from Swahili.

092 to run away (-kimbia)

1.	-matʊka	A	1-16
2.	-ʊgɪa	B	1a, 7, 15, 20, 40-44
3.	-kuðʊka	C	17-24
4.	-ŋaria	D	24, 26-29, 31
5.	-ʊːra	E	25, 30, 32a-39, 99
6.	-sɛmba	F	45-71, 75, 80, 83, 85, 88, 90-97
7.	-bɔ́ða	G_1	73, 77-79
8.	-bʊ́ða	G_2	72, 74, 76, 81, 82, 84, 86, 89
9.	-tɛŋɛra	H	98, 100-104
10.	-aɲʊka	I	105

The reason for the relatively high diversity of the items above remains unclear.

093 to follow (-fuata)

1.	-ðingata	A	1-29, 32a, 35-44
2.	-rʊmɪrɪra	B	24, 30-34, 36, 38b, 98-105
3.	-atɪa	C	45-69, 71-74, 85-97
4.	-bikɪla	D	70, 75-84

Form D is related to CB *-pi̧k- C.S. 1550 (see also *085 to arrive*). The occurrence of /l/ in this form as well as the restricted distribution suggest, however, that the Kamba locations showing form D must have borrowed this verb from an unknown donor as only the stem -bik- is related to CB. The donor language of this verb presumably shows the applicative morpheme /-ɪra/, which is phonologically adapted by Kamba speakers as /-ɪla/.

094 to return (-rudi)

1a.	-cɔ:ka	A_1	1-26, 31-34, 40-44
1b.	-sɔ:ka	A_1	104, 105
2.	-ciɔ:ka	A_2	27-30, 32, 35-39
3.	-syɔka	A_3	48, 49, 56, 61-68, 70-97
4a.	-cɔka	A_4	98-101, 103
4b.	-sɔka	A_4	102
5.	-syɔkɛ́ðya	A_5	87
6.	-siɔka	A_6	45, 46, 47, 50-55, 57-60
7.	-tʊnga	B	69

All forms subsumed under A are loans from Maasai *a-shúk* 'to give back' (Tucker & Mpaayei 1955: 304). The forms subsumed under A_1 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Ndia und Gichugu), as are the forms subsumed under A_4 (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a).

095 to send (-tuma)

1.	-tʊma	A	1-53, 55-57, 59-97
2.	-latia	B	54
3.	-twaa	C	58

Form A is related to CB *-túm- C.S. 1831. Form B is a loan of unknown origin.

096 to bring (-leta)

1.	-rɛːta	A_1	3-7, 11-16, 20, 27-30, 40-44
2a.	-rɛːtɛ	A_2	1, 2, 7-10, 17-19, 21-26, 31-39, 104
2b.	-ɛːtɛ	A_2	45-97
4.	-rɛɦɛ	A_3	98-103, 105

All forms are related to CB *-déét- C.S. 546. The two forms subsumed under are treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). Form A_3, restricted to Gikuyu and Gichugu, is irregular and considered a skewed item.

097 to take, recieve (-shika, -chukua)

1.	-jʊːkia	A_1	1-16
2.	-yʊːkia	A_2	7, 17-30, 40-44
3.	-ɔːca	B_1	31-39
4a.	-ɔsa	B_2	45, 47, 48, 53-56, 60, 61, 62, 65-79, 81-84, 86-97
4b.	-ɔya	B_2	98, 99, 101-103, 105
5.	-ɔza	B_3	51, 52, 57, 59
6.	-twara	C	100, 104
7.	-kua 'carry'	D	46, 50, 58, 63, 64, 80, 85

Both forms subsumed under B_2 are treated as identical (*J_1). The relatively high diversity indicates borrowing. Möhlig (1974a: 124) suggests that form A_2 is the older form, that spread from Tharaka into the remaining dialects in the eastern foothills of Mt. Kenya.

098 to seize (-kwata)

1.	-gwaːta	A_1	1-39
2.	-kwata	A_2	45-51, 53, 54, 58, 59, 61-69, 71-79, 81-86, 88-95, 97
3.	-baːta	B	40-44
4.	-ɦɛra	C	98
5.	-ɦɛːnaɦɛːnia	D	99
6.	-tiga	E	100
7.	-ɲita	F	101
8.	-tʊŋa	G	102
9.	-ðira	H	103
10.	-ɦʊtara	I	104
11.	-bɛna 'snatch'	J	52, 55-57, 60, 70, 80, 87, 96

Both forms subsumed under A are related to CB *-kúát- C.S. 1172. They are treated as phonologically divergent due to different vowel lengths. The first consonants of these form, however, correspond regularly, as Dahl's Law is inactive in Kamba (cf. *K_3). The relatively high diversity of the remaining items is yet to be explained.

099 to lay down (-weka)

1.	-ɪːka nðɪ	A	1-12, 16
2a.	-rɛkia nðɪ	B	13, 14, 15, 40
2b.	-lɛkia	B	60
3.	-iːga nðɪ	C_1	27-30, 32, 34-39
4.	-i(y)a (nðɪ)	C_2	45-97

5.	-iːgɪra nðɪ	C_3	17-25, 43
6.	-igɪrɪra nðɪ	C_4	26, 31, 33, 98
7.	-aiga nðɪ	C_5	41, 42, 44
8.	-kɔma	D_1	99, 102
9.	-kɔmia	D_2	101
10.	-ɦurʊka	E	100
11.	-ara ðɪ	F	103
12.	-ɪnga ðɪ	G	105
13.	-balʊk(y)a	H	54, 58

The forms subsumed under B are loans of unknown origin and treated as identical ($*R_3$). The relatively high diversity of all forms subsumed under C is due to morphological divergence, e.g. applicative usage. Moreover, there are different concepts involved: Form A also appears under the keyword *102 to throw* (with causative usage). Form D_1 also occurs under the keyword *056 to sleep*. Form D_2 is an applicative derivation of this verbs, meaning 'to put to sleep'. Form G might be related to the noun *kɪ.ɪnga* occurring under the keywords *276 stock (of grain)* and *277 barn*.

100 to swim (-ogelea)

1a.	-ðambɪra	A_1	1-44c, 101-103
1b.	-ðambɪa	A_1	45-97
2.	-ɪ.ðambɪra	A_2	105
3.	-bʊtɪra	B_1	17, 21, 24, 29, 41-43
4.	-bʊcɪra	B_2	28
5.	-ɪ.bʊtɪra	B_3	31, 32
6.	-bʊtɪa	B_4	36, 38, 104
7.	-tʊbɪra	C	98-100

All forms subsumed under A are related to CB *-càmb- C.S. 267 and used with an applicative marker. Form A_2, in addition, shows a reflexive marker. Both forms subsumed under A_1 are treated as identical ($*R_1$ /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). All forms subsumed under B are rather restricted in terms of distribution and, therefore, possible loanwords. They might be borrowed from form C (metathesis), prevailing in the Nyeri dialect of Gikuyu, which, again, might be an external loan.

101 to jump (-chupa)

1.	-ðʊngʊða	A	1-15, 40-44
2.	-rʊːga	B	7, 13, 16-26, 31-36, 98-105
3.	-TʊːPA	C	27-30, 35-39
4.	-ðaŋʊka	D	46, 49, 50, 52-54, 64, 65, 94
5.	-tʊʊlɪla	E_1	60, 61, 66, 67
6.	-tʊlɪla	E_2	47, 48, 51, 56, 58, 59, 71, 90, 93, 96
7.	-tuɪla	E_3	63, 68, 69, 70, 72-86, 88, 91, 92, 95, 97
8.	-kila	F	45, 87, 89
9.	-ðaka	G	55, 57

In accordance with the correspondence series $*P_1$, the following forms are subsumed under C: *-tʊːɦa* (Chuka) and *-tʊːva* (Mbeere). All forms subsumed under E are loanwords of unknown origin. Form F is also a loan whose origin is yet unclear.

102 to throw (-tupa)

1.	-gɛra	A	1-26, 41-44
2.	-ɪːkia	B_1	27-40
3.	-ɪkya	B_2	45-97
4.	-ikia	B_3	98-100, 103, 105
5.	-ika	B_4	101
6.	-tɪ	C	102, 104

All forms subsumed under B are causative derivations of the verb *-ɪːka* appearing under the keyword *099 to lay down*.

103 to fall (-anguka)

1.	-gU̱a	A_1	1-12
2.	-gUa	A_2	13-44, 98-105
3.	-balUka	B	45-97

Form B is a loanword in Kamba, as the occurrence of /l/ suggests. Ehret (1980: 217) lists the forms **tluk'* and **tluuk'* for Proto-Southern Cushitic.

104 person (mtu)

1.	mU.UndU	A_1	1-44c
2.	mU.ndU	A_2	45-105

Both forms are related to CB *-ntù C.S. 1798.

105 name (jina)

1.	ri.ɪːtwa	A_1	1-44c
2.	rɪ.ɪtwa	A_2	98-105
3.	ɪ.syɪtwa	A_3	45, 47, 51, 53-86, 88-97
4.	(ɪ.)sɪɪtwa	A_4	46, 49, 52
5.	syɪtwa	A_5	48, 87
6.	nzɪɪtwa	A_6	50

All forms are connected to CB *-yɟt- 'to call' C.S. 2069. The reason for the relatively high diversity is unclear.

107 elder (mzee)

1.	mU.kUrU	A	1-28, 32, 33, 36, 40-44, 98, 99, 103
2.	mU.ðuːri	B	26-39, 101, 105
3.	mU.tUmɪa	C_1	45-61, 63-76, 80-85, 87-97
4.	mU.tUmya	C_2	62, 77-79, 86
5.	mU.ðɛɛ	D	100, 102, 104

Form B also occurs under the keywords *113 husband* and *114 father*. Form D is a loan from Swahili restricted to the western dialects of Nyeri, Murang'a, and Ndia.

108 friend (rafiki)

1.	mU.cɔːrɛ	A	1-29, 40-44
2.	mU.raːta	B	17-39, 98-105
3.	mU.ɲaŋa	C	45-97

Form A, prevailing on the eastern slopes of Mt. Kenya, is a loan from Maasai *ol-coré* (Tucker & Mpaayei 1955:

292). Form B is a nominalization of the verb *-ra:ta* 'to mend, patch up' (Benson 1964: 372), literally meaning 'the one who mends'. Form C is restricted to the Kamba dialects.

109 guest, stranger (mgeni)

1a.	mʊ.gɛni	A_1	1-44c, 98-105
1b.	mʊ.ɛni	A_1	45-97
2.	mw.ɛni	A_2	80, 88, 89

All forms are related to CB *-gèn̨ C.S. 805. The two forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba) and as phonologically divergent from A_2.

110 family, homestead (jamaa)

1.	mʊ.cɪɪ	A_1	1-12, 99
2.	mʊ.jɪɪ	A_2	13-44c
3.	mʊ.sɪɪ	A_3	104
4.	mʊ.syɪ	A_4	45, 48, 51, 61, 63-70, 72-97
5.	mʊ.sɪɪ	A_5	47, 49, 50, 52-55, 57, 59, 60
6.	mbaa	B	46
7.	ʊ.kɔɔ	C	62, 71
8.	(andʊ a) ɲʊmba	D	98, 102, 103

The relevant CB form for this item is *-gi̧ C.S. 818. Consequently, none of the above forms is regularly derived from CB. Thus, all forms subsumed under A seem to be loanwords, whose origin is unclear. The restricted distribution of the forms B and C also suggests borrowing. Form D, restricted to Nyeri, Murang'a, and Mathira, literally means '(the people of) the house'.

111 marriage (ndoa)

1.	ʊ.gʊrani	A	1-7, 25, 32-44
2.	mʊ.ranʊ	B	7-16
3.	gɪ.ɪkaɲʊ	C	17,21
4.	ʊ.PIKI	D_1	17-31, 35-39, 98, 100, 102
5.	ʊ.PIKANIA	D_2	33a, 99
6.	kʊ.ɦiki	D_3	101
7.	kɪ.ɦikɔ	D_4	102, 103
8.	kʊ.ɦika	D_5	104
9.	kʊ.ɦikania	D_6	105
10.	mʊ.twaanɔ	E	45-97

The relatively high diversity of the items above, according to Möhlig (1974a: 126) suggests borrowing. In accordance with the correspondence series *P_1, the following forms are subsumed under D_1: *ʊ.ɦiki* (Mwimbi, Muthambi, Chuka) and *ʊ.viki* (Mbeere). The forms A, D, and E also appear as relevent verbs under the keyword *112 to marry*.

112 to marry (-oa)

1.	-gʊrana	A	1-44c
2.	-twaa(na)	B	45-97
3.	-ɦikiɔ	C_1	98
4.	-ɦikania	C_2	99, 101-104
5.	-ɦikia	C_3	100, 105

All of the forms above are connected to the relevant nouns attested under the keyword *111 marriage*.

113 husband, man (mume)

1a.	mʊ.rʊmɛ	A	1-44c, 98, 102, 104
1b.	mʊ.ʊmɛ	A	45-97
2.	mʊ.ðu:ri	B	99-101, 103, 105

The two forms subsumed under A are derived from CB *-dúmè C.S. 697 and treated as identical (*R_1 /_/a, ɛ, ɔ, ʊ/ >/Ø/ in Kamba). Form B, restricted to Gikuyu and Gichugu, is also attested with the meaning *107 elder* in Chuka, Embu, and Mbeere.

114 (my) father (baba yangu)

1.	ba-ba	A_1	1-39, 99, 100, 105
2.	wa-wa	A_3	101
3.	fa-fa	A_4	98
4.	ba:bu	B	40-44
5.	nau	C	45-62, 64-68, 71, 75, 78-80, 82-84, 87, 95
6.	ta:ta	D	63, 69, 70, 72, 73, 74, 76, 77, 81, 85-94, 97
7.	asa	E	96
8.	mʊ.ðu:ri	F	104
9.	iðɛ	G_1	102
10.	iðɛwa	G_2	103

Most of the forms listed here are typical of chidren's speech, which explains the relatively high diversity of the items above. Form F is, however, a socially more significant term for 'father' also occuring under the keywords *107 elder* and *113 husband*. Form D, only occurring in Kamba, is related to CB *-tàátá C.S. 1686.

115 wife, woman (mke)

1.	mʊ.ka	A	1-53, 55, 57, 61-66, 70-72, 75, 77-79, 81, 82, 84-87, 89-91, 93, 94, 102
2.	kɪ.bɛti	B	54, 56, 58-60, 67-69, 73, 74, 76, 80, 83, 88, 92, 95-97
3.	mʊ.tumia	C_1	98, 101, 103-105
4.	mʊ.timia	C_2	99, 100

Form A is related to CB *-ká C.S. 970.

116 (my) mother (mama yangu)

1.	ntɪ	A	1-13
2.	JI:A	B	12, 13
3.	ta:ta	C	10-16, 40-44
4.	maitʊ	D_1	13, 14, 17-34, 99, 101
5.	mʊ.aitʊ	D_2	35, 39
6.	mw.aitʊ	D_3	45-51, 53-61, 63, 64, 66-70, 72, 74, 75-86, 91, 92, 95, 96
7.	mami	E_1	32, 33, 98, 100, 105
8.	mama	E_2	89, 90
9.	ɲaɲa	F	28-30, 32, 35-37
10.	iɲa	G	52, 65, 73, 74, 87, 88, 90, 93, 94, 97
11.	ɲina	H_1	102, 104
12.	ɲinawa	H_2	103

13.	ɲinia	H_3	62, 71

117 to love (-penda)

1.	-ɛnda	A	1-105

For all of Central Kenyan Bantu, the same form derived from CB *-yènd- C.S. 1974 is attested.

118 to obey (-tii)

1.	-aːðɛka	A_1	1-16, 18, 22-25, 28, 29, 31-34, 39, 42a, 44
2.	-aðɪka	A_2	99-101, 103
3.	-ɪtɪka	B_1	17-21
4.	-ɪtɪkɪria	B_2	7, 11
5.	-ɪtɪkia	B_3	14, 26, 27, 30, 36-38, 41-44
6.	-ɪtɪki(l)a	B_4	48, 52, 55, 60, 72, 74, 77, 86
7.	-ɪgua	C	20, 40
8.	-ɪᵍwa	D	45, 47, 51, 54, 56, 57, 59, 61, 63, 64, 66-70, 75, 76, 78-80, 82-85, 87-90, 92-97
9.	-atɪɪa	E	46, 50, 53, 58, 73, 77, 78, 81
10.	-ata	F	62, 71
11.	-ɪanɪsya	G	65, 91
12.	-tɪa	H	98, 102, 104, 105

According to Möhlig (1974a: 127), the relatively high diversity of these items is due to influence by missionary school education. The two forms subsumed under A spread via vernacular teaching by catholic missionaries from Gikuyu and Imenti respectively, i.e. from the towns of Nyeri and Meru. As the occurrence of /l/ suggests, form B_4 is a loan in Kamba. Possible donors of this item are the varieties on the slopes of Mt. Kenya. Form C and D also occur under the keyword *554 to hear*. Form H is a possible Swahili loan.

121 child (mwana, mtoto)

1.	mʊ.aːna, kaːana	A_1	1-44c
2.	mw.ana, ka.ana	A_2	45-105

The two forms are related to CB *-yánà C.S. 1922, constructed either in class 1 or diminutive class 13.

123 daughter (mwana wa kike, binti)

1.	mʊ.aːrɪ	A_1	1-44
2.	mw.arɪ	A_2	99-103, 105
3.	mʊ.kɐɲɛ	B	17-21
4.	mw.ɪɪtu	C_1	45-97
5.	mʊ.irɪtʊ	C_2	104
6.	mw.ana wa irɪtu	D	98

The reason for the relatively high diversity of the items above is mostly unclear. The forms B, C, and D also appear under the keyword *127 girl*. Ehret (1980: 284) lists the forms *ʔal and *ʔaal for Proto-Southern Cushitic with the meaning 'girl'.

126 boy (mwana wa kiume)

1.	Mʊ.Pɪ:Jɪ	A_1	1-20, 40-44
2.	KA.Pɪ:Jɪ	A_2	15, 21-44
3.	kɪ.bɪsɪ	A_3	45-65, 80, 83, 90, 93, 95, 96

4.	ka.bɪsɪ	A_4	66-79, 81, 82, 84-89, 91, 92, 94, 97
5.	ka.ɦɪɪ	A_5	98-101, 103-105
6.	kɪ.ɦɪɪ	A_6	102
7.	mw.anakɛ	B	61

The reason for the relatively high diversity of the items above is partially due to morphological divergence. The forms A_2, A_4, and A_4 show the class 13 prefix, which is generally connected to a diminutive meaning in the Bantu languages.

127 girl (binti)

1.	mU.kɐɳɛ	A	1-30
2.	ka.rɪgU	B	31-39
3.	ka.ðɛra	C	40-44
4.	mw.ɪɪtu	D_1	45-97
5.	ka.irɪtu	D_2	98, 100-105
6.	kɪ.rɪtu	D_3	99

The forms A and D also occur under the keyword *123 daughter*. The forms subsumed under D show accumulated, i.e. slight phonological and morphological divergence in terms of noun class markers. In most locations in the west of the language area, i.e. Gikuyu, Ndia, and Gichugu, *ka.irɪtu* is used (class 13 diminutive marker).

128 twins (pacha)

1.	MA.PAðA	A_1	1-28, 40-105
2.	ma.ðaða	A_2	29-39

Form A_1 is regularly connected to CB *-pácà C.S. 1407; it is attested as the following forms ($*P_1$): *ma.ɦaða* (Gikuyu, Chuka, Meru, Tharaka), *ma.vaða* (Embu, Mbeere), and *ma.βaða* (Kamba, Ndia, Gichugu). Form A_2, restricted to Chuka, Embu, and Mbeere, is considered to show a skewed shape.

131 barren woman (mwanamke tasa)

1.	mða:ta	A_1	1-44c
2.	ða:ta	A_2	99-103
3.	ra:ta	A_3	105
4.	kɪ.ða:ta	A_4	46
4.	ngungu	B	45, 47-97
5.	mU.tumia mUtɛ	C	104

Form B, prevailing in Kamba, is possibly related to CB *-kúng- 'tie up' C.S. 1226. For the meaning 'barren female', Kießling and Mous (2003: 334) list the form **tsa'ata* for the Cushitic languages of Alagwe and Burunge of Tanzania. The source word for all forms subsumed under A might, consequently, be Cushitic in origin.

132 baby (mtoto mchanga)

1.	ga.kɛnkɛ	A_1	1-6, 24
2.	ka.gɛnkɛ	A_2	7-21, 26-30, 40-44
3.	ka.Ukɛngɛ	A_3	45-47, 49-55, 57-60, 62, 63, 68, 71
4.	Circumscriptions	B	22-25, 31-39
5.	ka.ana ka.niini	C_1	48, 56, 61, 64, 65, 66, 68, 69, 70, 72-78, 80-83, 85-98, 103
6.	mw.ana	C_2	99-102, 104, 105
7.	mw.ana mU.niini	C_3	79, 84

All forms subsumed under C are related to CB *-yánà C.S. 1922. They also occur under the keyword *121 child*. The two forms C_1 and C_3 literally mean 'small child' (cf. *575 small*).

133 adult (-ʒima)

1.	-nɛnɛ	A	1-30, 42a
2a.	-gima	B	13, 14, 16a, 17, 21, 24, 25, 28b, 29a, 31-44, 98-105
2b.	-ima	B	45-97

Form A is also attested with the meaning *574 big* in all of Central Kenya Bantu. The two forms subsumed under B are related to CB *-gi̯mà C.S. 830 and treated as identical (*G/_/i/ > Ø in Kamba).

134 voice (sauti)

1.	mʊ.gambɔ	A	1-23, 26-39, 99, 101-105
2.	ka.yʊ	B_1	7-15, 40-44
3.	ka.jʊ	B_2	3a, 5, 6
4.	ka.yu	B_3	24, 25
5.	w.asya	C_1	45-47, 49-60, 62, 63, 66, 68-97
6.	w.asia	C_2	48, 61, 64, 65, 67
7.	ðauti	D	98, 102
8.	mw.ariʊ	E	100

Form A is also attested under the keyword *138 language* for Imenti. The root *-gamb-*, moreover, also occurs under the keyword *175 lawsuit* and is possibly connected to the notions of 'voice' / 'language'. Form D is borrowed from Swahili.

135 to make noise (-piga kelele)

1.	-ringa gɪ.tuma	A	1-16
2.	-gʊndʊka	B	13, 40-44
3.	-nɛgɛna	C	13, 16a, 17-39, 98, 104
4.	-lɔnza	D	46, 47, 49, 51-60, 62-97
5.	-anɪrɪra	E	99-103, 105
6.	-kʊna kɛlɛlɛ	F	45, 48, 50, 61

The verb in form A also occurs under the keyword *164 to hit, strike* and is used in several contexts (e.g. *417 to iron*, *284 to churn*). Form C is also attested under the keyword *161 to quarrel*. Form D is a loanword in Kamba borrowed from an unknown donor. The noun *kɛlɛlɛ* in form F, used with *-kʊna* 'to hit', is borrowed from Swahili. In this sense, form F is somewhat of a loan translation or calque consisting of an inherited verb as well as a borrowed noun.

136 to call (-ita)

1.	-ɪːta	A_1	13, 16-24, 26, 30, 31, 35-39, 40-44
2.	-ɪːtana	A_2	1-12, 14, 15, 25, 27, 28, 29, 32-34, 40-44
3.	-ɪta	A_3	45-101, 103-105
4.	-ɪtana	A_4	102

All forms are related to CB *-yít- C.S. 2017 and used either in an underived form or with a reciprocal morpheme.

137 to cry (-lia)

1a.	-rɪra	A	1-44c, 98-105
1b.	-ɪa	A	45-97

Both forms are related to CB *-dìd- C.S. 561 and treated as identical (*R_1/_/ɪ/ >/Ø/ in Kamba).

138 language (lugha)

1.	rʊ.ðiɔmi	A_1	7-12, 15, 22-25, 27-30, 32, 40-44, 102, 103
2.	kɪ.ðyɔmɔ, kɪ.ðiɔmɔ	A_2	45-97
3.	mʊ.a:ririɛ	B_1	4, 5, 7, 13, 14, 16-21, 31-35, 37-39
4.	rʊ.ariʊ	B_2	22, 36,
5.	rʊ.aria	B_3	26, 42, 43, 44
6.	rʊ.ariɔ	B_4	101
7.	mʊ.gambɔ	C	1-6, 22
8.	luga	D_1	98
9.	luka	D_2	68, 69
10.	rʊ.rɪmi	E	100

All forms subsumed under B are nouns that correspond to the verb *-a:ria* attested under the meaning *139 to speak*. Form C is also attested under the keyword *134 voice*, the root *-gamb-* also occurs under the keyword *175 lawsuit*. Both forms subsumed under D are Swahili loans. Form E also occurs under the keyword *017 tongue*.

139 to speak (-sema)

1.	-a:ria	A	1-44c, 98-105
2.	-nɛ:na	B	45-97

Form A is related to the stem *-ari-* that denotes the term *138 language* in many of the languages in Central Kenya. Form B is related to CB *-néén- C.S. 1346 and restricted to the Kamba dialects.

140 to tell (-ambia)

1.	-ɪ:ra	A_1	1-44c
2.	-ɪra	A_2	98-105
3.	-tabia	B_1	45, 46, 49-52, 54, 55, 56, 58, 60, 76, 81
4.	-tabya	B_2	62-67, 69, 70- 75, 77, 78, 79, 82-97
5.	-tabaɲia	B_3	48, 53, 57, 59, 61, 80

The relatively high diversity among the forms subsumed under B is due to phonological and morphological divergence. The two forms B_1 and B_2 show phonologically divergent forms of a causative verb. Form B_3 shows both a causative and a reciprocal extension.

141 tale, story (hadithi)

1.	rʊ.gɔnɔ	A_1	1-30, 40-44
2.	rʊ.ganɔ	A_2	31-39, 99, 100-104
3.	ka.rʊganɔ	A_3	98
4.	gʊ.ti:ŋwɛ	B	103
5.	ngɛwa	C_1	45, 47, 50-53, 55-60, 62-65, 67, 68, 70-74, 77, 80-82, 85-87, 91
6.	ʊ.kɛwa	C_2	66, 69, 78, 79, 84, 88-90, 93-96
7.	wanɔ	D_1	46, 48, 49, 51, 54, 61, 92
8.	mbanɔ	D_2	65, 83
9.	kw.ana	E	97

144 to ask (-uliza)

1.	-ʊːria	A_1	1-39, 98-105
2.	-uːria	A_2	40-44
3.	-ʊlya	A_3	45-97

Form A_3 is a loan in Kamba originating from the languages on the slopes of Mt. Kenya.

145 to answer (-jibu)

1.	-cɔːkia	A_1	1-26, 31, 33-36, 39-44
2.	-ciɔːkia	A_2	27-30, 32, 37, 38
3a.	-cɔkia	A_3	98-101, 103
3b.	-sɔkia	A_3	102, 105
5.	-sɔːka	A_4	104
6.	-sʊngɪa	B_1	45-61, 63-69, 72, 74-78, 80-82, 84, 85, 87-96
7.	-sʊngɪ̱a	B_2	62, 70, 71, 73, 79, 83 ,86, 97

All forms subsumed under A go back to the Maasai word *a-shúk* 'to give back' (Tucker & Mpaayei 1955: 304), also attested with the meaning *094 to return*. The two forms subsumed under A_3 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Ndia und Gichugu). The forms subsumed under B are limited to Kamba.

146 to ask for (-omba)

1.	-rɔmba	A	1-26, 40-44
2.	-bɔːya	B_1	27-39, 45-47, 49, 52-61, 63, 65, 67, 69, 70, 72-74, 77-81, 86, 89-97
3.	-ɦɔːia	B_2	98, 100, 101
4.	-ɦɔːɦɪa	B_3	104
5.	-ɔya	B_4	105
6.	-ɪtya	C	48, 50, 51, 59, 62, 64, 71, 75, 82-85, 87, 88, 92
7.	-ʊːria	D	99, 102, 103

Form B_1 is related to the other forms subsumed under B. In terms of regular derivation, a form with stem-initial /ɦ/ would be expected für Chuka (27-30). This variety shows, however, *-bɔːya*, while Embu and Mbeere both show *-vɔːya*. Possibly, Chuka, Embu, and Mbeere borrowed this form from Kamba, where *-bɔːya* is widespread. Form C is possibly connected to the meaning *136 to call*. Form D also appears under the keyword *144 to ask*.

147 to help (-saidia)

1.	-tɛːðia, -tɛːðɛːria	A_1	1-44
2.	-tɛiðia	A_2	98-101, 103, 104
3.	-tɛðya	A_3	45-47, 54, 56, 57, 59, 61, 62, 64, 65, 69, 71, 73, 74, 75, 80-85, 88, 90, 92, 95, 97
4.	-tɛðɛɛsya	A_4	48, 49, 51, 52, 53, 55, 63, 66-68, 70, 72, 76-79, 86, 87, 89, 91, 93, 94, 96
5.	-tɛðɛɛðya	A_5	50
3.	-tɛirɪrɪria	B	102, 105

All of the forms listed here possibly go back to Swahili *-saidia*. The high diversity of this items indicates parallel borrowing.

148 to refuse (-kataa)

1a.	-rɛga	A	1-44c, 98, 100-105
1b.	-lɛa	A	45-97

The relevant form constructed by Guthrie, CB *-dég- 'avoid' C.S. 521, is also attested in Central Kenyan Bantu with the meanings *181 to deny* and *185 to forbid*. The Kamba form *-lɛa* is borrowed from the languages close to Mt.Kenya. However, borrowing from Swahili *-rea* 'to be angry' cannot be ruled out. Both forms are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ and *R_3 > /l/ in Kamba).

149 to permit, agree (-ruhusu, -kubali)

1.	-ɪ-tɪkɪra, -ɪːtɪkɪria	A_1	1-44c, 98-105
2.	-ɪtɪkɪlya	A_2	45, 47-56, 58-60, 62, 64, 65, 69, 72, 74-79, 82, 84-88, 90, 91, 92, 95
3.	-nɛnganɛ ʊðɛi	B_1	46, 67
4.	-nɛnganɛ lʊʊða	B_2	57, 61
5.	-nɛnganɛ mwaɲa	B_3	62, 63, 66, 68, 70, 71, 73, 80, 81, 83, 89, 93, 94, 96, 97

The occurrence of /l/ in form A_2 suggests that this item was borrowed by Kamba from the varieties uphill. All forms subsumed under B have the meaning 'to give permission' (cf. *150 to give*). The noun *lʊʊða* in form B_2 is borrowed from Swahili *ruhusa* 'permit'. In both cases *148 to refuse* and *149 to permit* influence by local schooling is likely.

150 to give (-pa)

1.	-PA	A_1	7, 15, 22, 24, 28, 36, 39
2.	-ɦɛ	A_2	98, 100, 101, 104
3.	-ɦɛna	A_3	99
4.	-ɦɛana	A_4	102, 103
5.	-ɦɛɔ	A_5	105
6.	-NɛNKɛRA, -NɛNKANɛRA	B_1	7, 13-26, 28, 30, 32, 35-44
7.	-nɛnga	B_2	46-56, 58-61, 65, 67, 68, 81, 87
8.	-nɛngɛ	B_3	74, 78-80, 82, 84, 85, 88, 90-93, 96, 97
9.	-nɛngana	B_4	45, 62, 63, 71
10.	-nɛnganɛ	B_5	57, 64, 66, 77, 69, 72, 73, 86, 89, 94, 95
11.	-nɛngania	B_6	70, 75, 76
12.	-Pɛ:JANA	C	1-12, 17-21, 27-34
13.	-rʊŋia	D	40-44

The relatively high diversity among the items above is mainly due to accumulated divergence. In the western dialects, for example, the prototypical usage of the verb *-ɦɛ* is attested next to reciprocal usage. All forms subsumed under B are possibly related to CB *-nɟnk- C.S. 1363. The divergence among these items is, again, due to morphological divergence. In accordance with the dia-series *P_1, the following forms are subsumed under A_1: *-va* (Embu, Mbeere: locations 36 and 39), *-ɦa* (7 Imenti, 15 Igoji, 22 und 24 Muthambi, 28 Chuka). The following verbs are subsumed under B_1 (*NK_1) : *-nɛnkɛra*, *-nɛnkanɛra* (7 Imenti; 13-26 Igoji, Mwimbi, Muthambi; 28 Chuka; 40-44 Tharaka) and *-nɛngɛra*, *-nɛnganɛra* (32 Embu; 35-39 Mbeere).

152 gift (zawadi)

1.	kɪ.ɛːwa	A_1	1-16, 22-26, 40-44
2.	Kɪ.Pɛːɔ	A_2	17-39, 98-105
3.	mʊ.ðɪnzɪɔ	C_1	45, 48-61, 63-67, 69, 70, 72, 74, 75, 78-94, 96, 97
4.	mʊ.ðɪnzɻɔ	C_2	73, 76, 77
5.	kɪ.nɛngɔ	D	62, 68, 71, 95

The forms subsumed under A and form D are derived from the relevant verbs with the meaning *150 to give*. According to the dia-series *P_1, the following two forms are subsumed under A_2: *kɪ.ɦɛːɔ* (Mwimbi, Muthambi, Chuka, Gikuyu) and *kɪ.vɛːɔ* (Embu, Mbeere).

153 to show (-onyesha)

1.	-ɔnania, -ɔnia	A_1	1-47, 49-60, 62, 63, 70, 71, 75, 76, 80-84, 87, 88, 90, 92, 94, 96-102, 104, 105
2.	-ɔnɪrɪra	A_2	103
3.	-ɔni̯a	A_3	48, 61, 64, 65, 69, 72-74, 77, 86, 93
4.	-ɔnani̯a	A_4	66-68, 85, 89, 91, 95
5.	-ɔnanɛɛlya	A_5	78, 79

All forms are related to CB *-bón- C.S. 164 and show causative or applicative usage. Form A_5 is a loan in Kamba.

154 to look at (-tazama)

1.	-tɛga, -tɛgɛrɛra, -tɛgɛːra	A	1-12, 15
2.	-raiðɪːria, -raiða	B	11-26, 40-44
3.	-rʊria	C_1	31-39
4.	-lilya 'look'	C_2	49
5.	-rʊra	C_3	98, 100-105
6.	-cʊːðɪrɪria	D_1	27-30, 38, 39
7.	-ðʊ-ðɪrɪria	D_2	35-39
8.	-siːsya	E_1	45-48, 50-55, 57-59, 61-64, 66-69, 71, 80, 81, 85, 86, 87, 89-95, 97
9.	-saβisya	E_2	65, 72-74
10.	-ʃaisya	E_3	68, 82-84, 88, 96
11.	-ʃiːsya	E_4	56, 75, 76
12.	-sʊβisya	E_5	77, 86
13.	-sʊβilya	E_6	78, 79
14.	-ɔna	G	99

The relatively high diversity of the items above is due to low frequency of usage (Möhlig 1974a: 132). In Kamba, based on formal and distributional factors, a number of loanwords can be identified: Form C_2 is an isolated loan, occuring in one location of Masaku. All forms subsumed under E are also loanwords, as the high diversity suggests. The donors of these words are, however, unknown. Form G also appears under the keyword *556 to see*.

155 to explain (-eleza)

1.	-ɔnɛːria, -ɔnania, -ɔnanɪːria	A_1	1-26
2.	-ɪnanɪra	A_2	101
3.	-ɪrɪːca, -ɪrɪːja, -ɪrɪːða	B_1	14, 20, 21, 31, 40-44
4.	-ɛlɛsɪa	B_2	45, 47, 49-53, 55, 57, 58, 60
5.	-ɛlɛsi̯a	B_3	46, 48, 54, 56, 59, 61-97
5.	-ta-rɪria	C	27-39, 98, 100, 102-105

The forms subsumed under A are causative derivations of the verb *-ɔna* (cf. *556 to see*). All forms subsumed under B are loans from Swahili. The high diversity indicates parallel borrowing.

156 to teach (-fundisha)

1.	-ritana	A_1	1-6, 14
2.	-rutana	A_2	17, 21, 24, 27, 40-44
3.	-ðɔːmɪðia	B_1	1, 7-44, 98, 99, 100, 101, 103, 104
4.	-ðɔːmɪria	B_2	105
5.	-sɔmɛðya	B_3	49, 53, 55, 57, 59, 62-66, 68, 69, 70, 71, 74, 80, 83, 88, 90-96
6.	-sɔmɪðya	B_4	47, 50, 54, 60, 72, 77, 86
7.	-maɲɪsya	C_1	48, 52, 67, 73, 75, 76, 81, 82, 84, 87
8.	-maɲɪðya	C_2	46, 58
9.	-βʊndɪʃa	D_1	45, 51, 78, 79, 85, 89, 97
10.	-βʊndɪsya	D_2	56
11.	-βundiðia	D_3	102

All forms subsumed under B go back to Swahili -*somesha* 'to teach'. The forms subsumed under D are also Swahili loans going back to the verb -*fundisha* 'to teach'. The two forms subsumed under C are related to CB *-mànį- C.S. 1284a and restricted to Kamba.

157 to learn (-soma)

1.	-ðɔːma	A_1	1-44c
2.	-ðɔma	A_2	98-105
3.	-sɔma	A_3	45, 47, 49, 50, 52-55, 57-61, 64-68, 71, 73, 74, 76, 80, 81, 83, 85, 87, 88, 90, 91, 95
4.	-ɪ.mɛɲɪsya	B_1	48, 73
5.	-ɪ.maɲɪsya	B_2	62, 63, 69, 70, 96
6.	-ɪ.mɛɲasya	B_3	75, 82
7.	-ɪ.βʊndɪʃa	C_1	46, 51, 56, 72, 77, 79, 84, 86, 89, 92, 93, 94
8.	-ɪ.βʊndɪa	C_2	78

All forms subsumed under A are loans from Swahili. Kamba shows -*sɔma*, a direct loand from the coast, while the other Central Kenyan Bantu languages show -*ðɔma* or -*ðɔːma*, which were borrowed by these languages via Gikuyu. A few locations in Kamba show form B, that is related to CB *-mànį- CS 1284a. Some Kamba locations, moreover, show a reflexive form of the Swahili loan -*fundisha* (cf. *156 to teach*), literally meaning 'to teach oneself'.

159 to write (-andika)

1.	-andɪka	A	1-105

For this item the CB form *-yàndik- C.S. 1932 is constructed by Guthrie. Since writing is, however, a fairly recent innovation in most African cultures, it is highly unlikely that this form goes back to an old Bantu stratum. It is more plausible that the Swahili verb -*andika* spread into many languages in Eastern Africa including all of the Central Kenyan Bantu languages.

160 quarrel (ugomvi)

1.	ɪ.tɛta	A_1	1-15, 20, 35-39, 45-55, 57-64, 66-69, 71, 73, 75, 76, 86, 87, 88, 91, 93-96
2.	i.ðɛtɔ, ðɛta, kɪ.ðɛta	A_2	40-44
3.	kʊ.tɛta	A_3	80-82, 84, 92
4.	kʊ.tɛtania	A_4	56, 65
5.	kɪ.nɛgɛnɛ	B_1	13, 16-27, 30, 32a, 32b

6.	kU.nɛgɛna	B_2	98
7.	i.nɛgɛnɛ	B_3	103
8.	nkɔrɔbanɔ	C	15, 18
9.	NKARARI	D	28-34, 39c
10.	nganania	E_1	99
11.	nganaɲɔ	E_2	89
12.	kU.ɦia:ra	F_1	101
13.	mba:ra	F_2	104
14.	ma.mbi:canɔ	G	100
15.	U.kɔrɔba	H	102
16.	U.kalalya	I_1	72, 74, 77
17.	U.kakalyɔ	I_2	78, 79
18.	ngalali	I_3	70, 90
19.	kU.umana 'to curse'	J_1	85
20.	kw.ɛmana 'to curse'	J_2	96
21.	ma.ɛmanɔ 'curse' (n.)	J_3	83
22.	U.ðɔ:ria	K	105

The reason for the relatively high diversity of the items above remains unclear (cf. Möhlig 1974a: 133). Most forms are nominalizations of the relevant verbs (see *161 to quarrel)*. The forms subsumed under A are related to CB *-tét- 'to quarrel' C.S. 1720. Chuka, Embu, and an isolated location in Mbeere show form C, which is similar to the Kamba forms subsumed under I. These forms were borrowed by Kamba from Embu.

161 to quarrel (-gombana)

1.	-tɛta ~ -tɛtaɲa	A_1	1-15, 20, 25, 35-39, 45-60, 62, 63, 66-69, 71, 76, 80-82, 87, 88, 92-95
2.	-ðɛta	A_2	40-44
3.	-tɛtɟa	A_3	73, 84
4.	-nɛgɛna	B_1	7, 13, 16a-27
5.	-nɛgɛnania	B_2	98, 103
6.	-nɛɛnaɲa	B_3	86
7.	-kararania	C_1	28-34, 39
8.	-karania	C_2	99
9.	-kalalaɟa	C_3	70, 77-79
10.	-kalalɟa	C_4	74, 90
11.	-kananɟa	D	89, 91
12.	-ɛmanywa 'disagree'	E	61, 65, 75, 83, 96
13.	-mɛnana	F	72
14.	-tɛnɟa	G	64
15.	-mbi:cana	H	100
16.	-ɦarana	I	101
17.	-sɔmbɔða	J	102
18.	-rUa	K	104
19.	-ðɔ:ria	L	105

20.	-kɔmbana 'fight'	M	85, 97

All forms subsumed under A go back to CB*-tét- C.S. 1720. The relatively high diversity remains, however, unclear. A few locations in Gikuyu, Mwimbi, Muthambi, and one location in Kamba show forms subsumed under B, which are all regularly related, only diverging morphologically. The Kamba forms C_3 and C_4 are probably borrowed from Chuka and Embu (cf. *160 quarrel*).

162 to slap (-piga kofi)

1.	-BU:RA (na) RU.BE, -ringa (na) RU.BE	A	1-16, 27-34, 41-44, 98-100, 103, 105
2.	-ringa (na) nkundi	B_1	1-4, 14, 22-26
3.	-ringa ɪkɔ:bi	B_2	104
4.	-BU:RA nkɔ:bi, ɪkɔ:bi	C	20, 35-38, 40
5a.	-camUra	D_1	17-21
5b.	-samUra	D_1	102
6.	-atumura	D_2	101
7a.	-kUna	E	39
7b.	-kUna ɪ.kɔbi	E	45, 48, 50-52, 54-58, 60-63, 66-97
8.	-mandUla	F	49, 53, 59, 64
9.	-maalɪkya	G	65

There are different word used to denote the concept of slapping somebody. The verbs subsumed under A, B, and E also appear under the keywords *163 to beat somebody* and *164 to hit*. The forms B_2, C, and E express the notions of hitting somebody on the hat, i.e. the head. The nouns in these items go back to Swahili *kofia* 'hat'. The two items subsumed under B_2 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, U/ > /s/ in Murang'a). The two items subsumed under F and G are loanwords in Kamba, as the restricted distribution and the occurrence of /l/ indicate.

163 to beat somebody (-piga mtu)

1a.	-PU:RA	A	1-12, 14, 27, 31, 32, 35-39, 98-105
1b.	-βUa	A	81, 89
2.	-RIPA	B	13-34, 39
3.	-tura	C	40-44
4.	-kUna	D	45-80, 82-88, 90-97

The two forms subsumed under A are treated as identical. In accordance with dia-series *P_1, the following verbs are subsumed: *-vU:ra* (31-32 Embu, 35-39 Mbeere), *-ɦU:ra* (1-12 Imenti & Miutini, 14 Igoji, 27 Chuka, 98-103 Gikuyu), and *-βU:ra* (104 Ndia, 105 Gichugu). Moreover, the following two verbs are subsumed under B (*P_1): *-riva* (31-34 Embu, 39 Mbeere) and *-riɦa* (Igoji, Mwimbi, Muthambi, Chuka).

164 to hit, strike (-gonga)

1.	-ringa	A	1-34, 40-44, 98, 99, 104, 105
2.	-kuna	B	35-39, 45-97
3.	-gUða	C	100-102
4.	-ɦU:ra	D	103

The forms A, B and D also appear under the keywords *162 to slap* and *163 to beat somebody*.

165 war (vita)

1.	ndUa	A_1	1-12
2.	ndɔa	A_2	13-25, 27-29, 42a-44a

3.	ndwaa	A_3	4, 26, 40-44
4.	mbaara	B	7, 11, 12, 16, 17, 21, 30-39, 99, 102-105
5.	kaːu	C	45-97
6.	ɦaːrᴜ	D	98, 101

The forms subsumed under A are nominalizations of the verbs *-rᴜa* and *-rɔa* respectively; both denote the concept of *166 to fight* and go back to CB *-dù- 'to fight' C.S. 675. According to Möhlig (1974a: 134), form B is borrowed from Maasai *áà-àrà* 'to fight' and *en-árà*, either directly from Maasai or via Gikuyu.

166 to fight (-pigana)

1.	-rᴜa	A_1	1-39, 98, 100, 101, 104, 105
2.	-rɔa	A_2	14, 19b, 28a, 40-44
3.	-kita	B	45, 47-84, 86-97
4.	-ɦᴜːrana	C_1	99
5.	-ɦᴜːra	C_2	102
6.	-kᴜnana	D	46, 85
7.	-βᴜana	E	87

The origin of the two forms subsumed under A is discussed under the keyword *165 war*. The forms subsumed under C also occur under the keyword *164 to hit*. Form C_1 shows a reciprocal extension, literally meaning 'to hit one another'. The two forms D and E, both reciprocals, also appear under the keyword *163 to beat somebody*.

168 to chase away (-fukuza)

1.	-ɪnga	A_1	1-30
2.	-ingata	A_2	32a, 42a, 43a, 98-101, 103
3.	-ingataria	A_3	105
4.	-biɲᴜria	B_1	35-39
5.	-biɲᴜriðia	B_2	31-34
6a.	-rᴜngia	C_1	40-44
6b.	-lᴜngia	C_1	46
7.	-lᴜngya	C_2	48, 52-55, 57, 59-68, 70, 71, 73-85, 87-97
8.	-tɛŋɛria	D	102, 104
9.	-lᴜnza	E	50, 58
10.	-sɛmba	F_1	47
11.	-sɛmbia	F_2	45
12.	-sɛmbya	F_3	69
13.	-sɛmbɛðia	F_4	51
14.	-kᴜa	G	49
15.	-βukusa	H	56
16.	-ŋɛya	I	72
17.	-lilinga	J	86

The relatively high diversity of the items above may be due to little usage of this concept. There are also different notions involved. Moreover, a number of loanwords can be identified. The two forms subsumed under B are deverbalizations of the relevant word for 'violence' (Möhlig 1974a: 134). Form C seems to be genuine to Tharaka, from where it was borrowed by a number of locations in all of Kamba. Two locations in Masaku show the isolated form E, whose origin is unclear. Form F_1 also appears under the keyword *092 to run away*; the other forms subsumed under F are causative derivations of this verb. Form H is borrowed from the relevant Swahili

word *-fukuza*. Finally, the occurrence of /l/ indicates that form J is also a loanword in Kamba; its origin is, however, unknown.

169 to steal (-iba)

1.	-iːya	A_1	1-30, 40-44
2.	-ɪːya	A_2	31-39
3.	-ya	A_3	45, 48, 49, 51-64, 67, 69, 71, 72, 73, 76
4.	-iya	A_4	46, 47, 50, 98-105
5.	-ŋɛa	B	65, 66, 68, 69, 70, 74, 75, 77-97

All forms subsumed under A probably go back to a Common Central Kenya Bantu Stratum. The origin of form B is unclear.

171 to hide (-ficha)

1.	PIðA	A_1	1-28, 30, 40-105
2.	-ðiða	A_2	29, 31-39

Form A_1 is derived from CB *-pi̯c- C.S. 1546. According to the dia-series *P_1, the following forms are subsumed under A_1: *-ɦiða* (Meru, Chuka, Gikuyu, Gichugu) and *-βiða* (Kamba, Ndia). One location in Chuka as well as all of Embu and Mbeere show form A_2. The skewing of this form is due to assimilation of the first consonant (Möhlig 1974a: 134).

172 to curse (-laani)

1.	-rumana	A_1	1-16
2.	-ruma	A_2	4, 13-44, 98-105
3.	-umania	A_3	45-97
4.	-rɪrɪka	B	42a, 43a

All forms subsumed under A are related to CB *-du̯m- C.S. 741. The differences between these forms are morphological, i.e. reciprocal *-rum.an.a* vs. reciprocal-causative *-um.an.i.a*. The stems are treated as identical (*R_1/_/u/ > /Ø/ in Kamba).

173 to insult (-tukana)

1.	-ruma(na)	A_1	1-15, 20, 26, 31-44, 98-101, 103, 104
2.	-umania	A_2	45-97
3.	-cɛnga	B	16-30, 42a
4.	-sinʊra	C	102

The two forms subsumed under A are related to CB *-du̯m- C.S. 741 (cf. *172 to curse*) and treated as identical (*R_1/_/u/ > /Ø/ in Kamba).

174 lie (uwongo)

1.	ʊ.rɔngɔ	A	1-30, 40-44
2.	ma.Pɛːni	B_1	31-39, 103
3.	i.ɦɛːni	B_2	98
4.	kʊ.ɦɛːnania	B_3	98, 101, 102, 104, 105
5.	ʊ.βʊngʊ	C	45-97

In accordance with the dia-series P_1*, the following two forms are subsumed under B_1: *ma.vɛːni* (Embu, Mbeere) and *ma.ɦɛːni* (Mathıra).

175 lawsuit (mashtaka)

1.	ɪ.gamba	A	1-30, 40-44
2.	ma.ðiːtangɔ	B_1	3b, 6, 9, 11, 15, 16, 30, 31, 33, 42a
3.	ma.ðiːtanga	B_2	30-34
4.	ðitaːngɔ	B_3	98, 100, 103
5.	i.ðiːtangɔ	B_4	101
6.	kU.iðanga	B_5	102
7.	kU.ðitangana	B_6	104, 105
8.	ciːra	C	35-39
9.	ɪ.kwani	D_1	45-48, 50-55, 57-61, 75, 76, 81, 82, 91, 93
10.	ma.kwani	D_2	85, 88, 92
11.	ma.kɔani	D_3	49
12.	kU.sikata	E_1	64, 83
13.	kU.sikatwa	E_2	63
14.	U.sikatɔ	E_3	80
15.	mU.sikatiwa	E_4	68
16.	U.sikata	E_5	70
17.	ma.sikatanɔ	E_6	66, 67, 73, 84
18.	U.sitaka	F_1	62, 71, 86, 87, 95
19.	kU.sitaka	F_2	56, 97
20.	U.sitakwa	F_3	77, 79
21.	kU.sitakwa	F_4	72, 78, 90, 96
22.	mU.sitakwa	F_5	69
23.	mU.sitakani	F_6	89

This item demonstrates the severe Swahili influence on Central Kenyan Bantu by parallel borrowing. All forms subsumed under B are imported from Swahili, probably via Gikuyu. The forms subsumed under F are also Swahili loans that were directly transferred into Kamba from Swahili. Some Kamba locations additionally show metathesized forms of these loans. The prevailing forms in Kamba are, however, the genuine forms subsumed under D. Besides, some dialects of Central Kenyan Bantu also shows *ciːra* (restricted to Mbeere, cf. *176 law* and *177 judge*) and *ɪ.gamba* respectively (restricted to Meru and Tharaka, cf. *177 judge*). The latter is related to the notions of *134 voice* and *138 language*. Literally, *ɪ.gamba* denotes a concept like 'discussion, palaver'.

176 law (sheria)

1.	waːðɔ	A_1	1-44c, 103
2.	waðɔ	A_2	98-101, 105
3.	warɔ	A_3	102, 104
4.	mw.ɪaɔ	B_1	45, 48-53, 55-68, 70-73, 75-82, 84, 86, 88, 91, 93-95, 97
5.	m.ɪaɔ	B_2	74, 83, 85, 87, 89, 90, 92, 96
4.	sila	C	69

The forms subsumed under A are restricted to the dialects in the vicinity of Mt. Kenya. Form A_3, however, only occuring in Murang'a and Ndia, is possibly connected to the forms that are subsumed under B and restricted to Kamba. This form in Kamba also occurs in the context of *184 to command*. One location in South-Kitui shows an isolated form C that is possbily connected to *ciːra* in Mbeere (cf. *175 lawsuit*). However, borrowing from Swahili *sheria* can not be ruled out in this instance.

177 judge (hakimu)

1.	mU.gambi	A	7-12, 17-25, 44b
2.	mU.gambiðania	B_1	1-6, 13, 14, 16, 22-25, 42a
3.	mU.gambiðia	B_2	26
4a.	mU.ciːriðania	C	27-34, 39, 99, 100
4b.	mU.siːriðania	C	104
5.	njanji	D_1	11, 15, 20, 22-25, 31-44, 102
6.	ndʒangi	D_2	87
7.	tʃatʃi	D_3	97
8.	mU.sili	E_1	45-74, 76, 81-84, 86, 88-92, 96
9.	mU.ʃili	E_2	77, 79
10.	mU.silaɲia	E_3	93, 94
11.	mU.tui	F_1	98
12.	mU.twi	F_2	80, 85
13.	mU.twiɔ	F_3	95
14.	mU.tua	F_4	78, 101
15.	i.tuɪrɔ	H	105
16.	mU.smbɪ 'king'	I	75

This items demonstrates the influence English has had on the Central Kenyan Bantu languages: Some locations of the Meru cluster as well as in Embu, Mbeere, Tharaka, Murang'a, and two locations of Kitui-Kamba show the English word *judge* (form D). Most of the dialects on the slopes of Mt. Kenya, however, show forms that are connected to the meaning *175 lawsuit*. The forms subsumed under A and B are possibly connected to the stem *-gamb-* which occurs under the keywords *134 voice* and *138 language*. Literally, these forms denote 'the one who speaks'. In this context, it is important to note that legal disputes in Central Kenya were traditionally settled by elder men who were members of the political councils on the family-, clan-, and ridge-level. Lawsuits in the European sense were introduced much later by British colonialists. Interestingly, most Kamba locations show form E, that is connected to form C, which prevails in Embu, from where these forms were possibly transferred into Kamba. A few locations in Kamba, moreover, show form F which is possibly connected to the meaning *002 head*.

179 to accuse (-shtaki)

1.	-ðiːtanga	A	1-31, 33, 35, 41-44, 98, 102
2.	-cigaːta	B_1	28, 32-40
3.	-sikata	B_2	52, 53, 58, 63-65, 68-70, 74, 76, 80, 88, 91, 93
4a.	-sitaka	C	45, 46, 49, 51, 54-57, 59-62, 66, 67, 71-73, 75, 77-79, 81-87, 89, 90, 92, 94-97
4b.	-ðitaka	C	100
6.	-siːriðia	D_1	104
7.	-siliðya	D_2	47
8.	-silɪla	D_3	50
9.	-kwata	E	48

This item, again, demonstrates the massive influence by Swahili through parallel borrowing. Most locations on the eastern slopes of Mt. Kenya as well as some in the west of the mountain show a Swahili loan, possibly transferred via Western CKB. Most locations in Kamba also show a form that goes back to Swahili *-shtaki* and was directly borrowed from Swahili. This form C is also attested in Nyeri (both forms subsumed under C are treated as identical: $*C_2$ > /ð/ in Gikuyu and /s/ in Kamba). Some locations in Kamba, Embu, and Mbeere show

the metathesized forms B_1 and B_2. Ndia and two locations in western Masaku-Kamba show form D, that is connected to the item *177 judge*.

181 to deny (-kana)

1.	-kaːna	A_1	1-44c, 102, 105
2.	-kaːnaria	A_2	99
3a.	-lɛa	B	45-47, 49-82, 84-97
3b.	-rɛga	B	98, 100, 101, 103, 104
5.	-lalɻla	C	83

The two forms subsumed under B are related to CB *-dég- 'avoid' C.S. 521. The form prevails in Gikuyu, from where it was probably transferred into Kamba. The two forms are treated as identical (*R_3 > /l/ and *G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). It is, however, also possible that Kamba uses a Swahili loan -*rea* 'to be angry' (cf. *148 to refuse* and *185 to forbid*). Form C is an isolated loan in Kamba of unknown origin.

182 truth (kweli)

1.	ʊ.maa, maa	A	1-44c, 98-105
2.	buu	B	40, 41
3.	ʊ.^{g}wɔ	C	45-97

183 oath (kiapo)

1.	muːma	A_1	1-44c, 100, 101, 103, 105
2.	muma	A_2	54, 57, 65, 73, 78-80, 86, 87
3.	ka.urugɔ	B	35-39a
4.	kɪ.ðitʊ	C_1	45, 46, 48, 49, 50, 52, 53, 55, 60-72, 74, 76, 77, 79, 81-83, 85, 86, 88, 89, 91-97
5.	kɪ.ðitɔ	C_2	47, 51, 56, 58, 59
6.	bɪ.ɪbitɔ	D	75
7.	kʊ.ɦɪta	E_1	98, 99
8.	mw.ɪɦtɪtwa	E_2	102
9.	mʊ.ɪtɪkira	F	104

Most of the dialects in the vicinty of Mt. Kenya show form A, a loan from Maasai *ol-mumáì* (Tucker & Mpaayei 1955: 300). Form these dialects, this form was probably transferred into Kamba. However, direct Maasai-Kamba contact may also have been the case.

184 to command (-amuru)

1.	-aːða	A_1	13-44c, 99
2.	-aːðana	A_2	1-12
3.	-aða	A_3	45, 48, 53, 57, 87, 90, 92, 98, 101-103
4.	-ɪaɪa	B_1	49, 59, 61, 62, 64, 70-72, 75, 80-86, 91
5.	-ɪɪa	B_2	51, 88
6.	-ɪyaa	B_3	94
7.	-tanɻa	C	54
8.	-umia mw.ɪaɔ	D	50, 55, 76
9.	-laðimiðya	E_1	58
10.	-lasimiʃa	E_2	96
11.	-lasimiðya	E_3	56

12.	-ðiŋiiʃa	F_1	67
13.	-iŋɪɪʃa	F_2	63
14.	-nɛngɛ mw.ɪaɔ	G_1	78, 79
15.	-nɛnganɛ mw.ɪaɔ	G_2	93, 97
16.	-amʊlɪðya	H_1	69
17.	-amʊriðia	H_2	100, 105
18.	-kandia	I	60, 65, 68

Most of the dialects in the vicinity of Mt. Kenya as well as some locations in Kamba show cognate forms subsumed under A. They seem to originate from a Common Central Kenya Bantu Stratum. Some locations in Kamba also show circumscriptions (forms D and G) with the meaning *176 law*. The forms E and H indicate borrowing from Swahili: The former goes back to Swahili *-lazimisha* 'to force' and is attested in only a few locations in Kamba; the latter, attested in one location in Kitui-Kamba as well as in Nyeri and Gichugu, goes back to Swahili *-amuru* 'to command'. In general, the high diversity suggests horizontal processes. Concievably, this concept gained major important in the context of the colonial exploitation of the Kenyan Highlands.

185 to forbid (-kataza)

1.	-ka:nia	A_1	1-16, 31-44, 99, 102
2.	-kanya	A_2	47, 72, 77-79, 86
3.	-rigɪ:ria	B_1	16a, 17-21, 30
4.	-rɪgiðia	B_2	98
5.	-rɛgɛra	C_1	4, 22-25, 29
6.	-lɛa	C_2	46, 49, 50, 51, 53, 54, 74-76, 83, 85, 97
7.	-lɛðya	C_3	45, 70
8.	-lɛʃa	C_4	56
9.	-rɛgana	C_5	104, 105
10.	-giria	D_1	9, 14, 20, 26-28, 32, 35, 36, 42a, 44a
11.	-kiria	D_2	101
12.	-βata	E_1	55, 58, 61, 63, 64, 67, 71, 73, 80-82, 84, 87, 88, 90-93, 95
13.	-βatu̯a	E_2	57
14.	-βatwa	E_3	96
15.	-βatana	E_4	48, 52, 59, 60, 62, 65, 66, 69, 89, 94
16.	-ɪkɪra	F	100
17.	-ruma	G	103

The forms subsumed under A are connected to the keyword *181 to deny*. The same holds for the forms subsumed under B and C that all possibly go back to CB *-dég- 'avoid' C.S. 521. In Kamba, these forms are clearly borrowed from a donor showing /r/, most likely the languages in the vicinity of Mt. Kenya. The scattered distribution of the forms subsumed under D suggests that these items were borrowed; their origin is, however, unclear. The forms subsumed under E seem to be genuine to Kamba, occurring with a number of different verbal extensions. Form F is identical with the word *358 to put into*. Form G also appears under the keyword *072 to curse*.

187 to punish (-adhibu)

1.	-ka:nʊkia	A	1-7, 10, 40-44
2.	-Pɛ:RɪðIA	B	7, 8, 13-39, 99-105
3.	-ɛ:jana nðinjɛ	C	9, 11, 12
4.	-sila	D_1	47, 50, 53, 55, 57, 60, 69, 72, 74, 78, 83, 88

5.	-silıðya	D_2	45, 84, 90
6.	-silıla	D_3	48, 51, 56, 59, 61, 64, 66, 70, 89
7.	-silılwa	D_4	52
8.	-silılya	D_5	62, 73
9.	-silısya	D_6	79, 86
10.	-silania	D_7	65
11.	-ʃilıðaniaa	D_8	82
12.	-silaniaa	D_9	75, 80, 81, 91, 93, 94, 95
13.	-ɦɛːanıɦıra	E	98
14.	-twia	F_1	54, 71
15.	-tʊia	F_2	76
16.	-tʊʊa	F_3	46, 58, 63, 68, 77, 87, 92
17.	-amʊa	G	67
18.	-hukumiwa	H	96

The high diversity of the items above is partially due to borrowing. All forms subsumed under D, occuring in partially divergent forms all over Kamba, are loanwords. Their origin is, however, not quite clear. Possibly, they all go back to the Mbeere noun *ciːra* (*175 lawsuit*) or the word *mʊ.sili* which appears under the keyword *177 judge* in Kamba. However, it can not be ruled out that all these forms go back to the Swahili word *sheria* 'law'. Similar forms to the ones subsumed under F also appear under the keyword *177 judge*. In accordance with the dia-series *P_1, the following two forms are subsumed under B: *-ɦɛːrıðia* (Miutini, Igoji, Mwimbi, Muthambi, Chuka, Gikuyu, Ndia, Gichugu) and *-vɛːrıðia* (Embu, Mbeere).

188 dance, song (mchezo, wimbo)

1.	rʊ.imbɔ	A_1	1-25, 31-44
2.	rʊ.ımbɔ	A_2	26-30, 35-39
3.	waði	B	45, 47, 49, 51, 53, 54, 55, 57-59, 62-67, 71, 73, 76-82, 84-88, 90-97
4a.	ndaci	C_1	98, 99
4b.	ndasi	C_1	56, 68
5.	ndanzi	C_2	69, 72
6.	ngɔma	D	48, 61
7.	ma.sʊngɔ	E_1	60
8.	-sʊnga 'to dance'	E_2	46
9.	kʊ.ina	F_1	100-103, 105
10.	kw.ina	F_2	74, 75, 85
11.	kı.lumı	G	50
12.	ı.ðaʊ	H_1	83
13.	ʊ.ðaʊ	H_2	70

The two forms subsumed under A seem to be genuine to all dialects from Embu to Northern Imenti. In Kamba, form B prevails. Additionally, Kamba shows a number of loanwords: All forms subsumed under C go back to the relevant English word *dance*. Form D is borrowed from Swahili *ngoma* 'dance'. Form G, occuring in one location of Kamba-Masaku, is also a loan, whose origin is unclear. The two forms subsumed under E go back to the relvant keyword *189 to dance*. Most of the Gikuyu dialects as well as Gichugu use form F_1, the nominalization of the verb *-ina* (cf. *189 to dance, sing*), so do three locations in northern Kitui-Kamba (F_2). The restricted distribution of the forms subsumed under H suggests that *ı.ðaʊ* and *ʊ.ðaʊ* might be loans, too.

189 to dance, sing (-cheza ngoma, -imba)

1.	-iːna	A_1	1-44c
2.	-ina	A_2	51, 62, 67, 69, 71-73, 85-89, 91-105
3.	-sʊnga	B	47-50, 52-61, 63-67, 70, 74-82, 84
4.	-ðaʊka	C	45, 46, 68, 83, 90

191 to laugh (-cheka)

1.	-ðɛka	A	1-105

All of Central Kenyan Bantu shows the same form derived from CB *-cèk- C.S. 312.

192 to play (-cheza)

1.	-tindania	A	1-7, 12
2.	-ðaːka, -ðaːkania	B_1	7-39, 102, 104, 105
3.	-ðaka	B_2	98-101, 103
4.	-ðɛkania	C	40-44
5.	-cɛːða	D	15, 20, 40
6.	-ðaʊka	E	45-97

According to Möhlig (1974a: 137) form C, restricted to Tharaka, is derived from *-ðɛka* (*191 to laugh*). Form D, restricted to only three locations, is borrowed from Swahili *-cheza*.

195 to get drunk (-lewa)

1.	-ɔːgita	A	1-16
2.	-rɪːwa	B_1	15, 19, 22-39, 99
3.	-rɪːka	B_2	17-21
4.	-rɪɔ	B_3	98, 100-103
5.	-rɪɦɪɔ	B_4	104
6a.	-tɔːgɔna	C	40-44
6b.	-tɔɔna	C	75, 76, 78-84
7.	-milwa	D	45-49, 51-55, 57-66, 71, 85, 86, 91, 92, 94, 95
8.	-ɲwa	E	50, 56, 69, 70, 72, 73, 77, 80, 83, 88, 90, 96
9.	-kwatika	F_1	74
10.	-kwatwa	F_2	87, 97
11.	-sindwa	G	93
12.	-ðɛnga	H	67, 68

The relatively high diversity of the items above is due to different concepts and borrowing. All forms subsumed under B presumably go back to the relevant Swahili verb *-lewa* (Möhlig 1974a: 138). The two forms subsumed under C are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/). The restricted distribution of *-tɔɔna* suggest that the northern Kitui-Kamba might have borrowed this verb from their Tharaka neighbors. The occurrence of /l/ indicates that form D is also a loanword in Kamba. Form E also appears under the keyword *388 to drink*. The two forms subsumed under F go back to the verb *-kwata* with the literaly meaning *098 to seize*. Form G is borrowed from Swahili *-shindwa* 'to be overcome' (by alcohol, in this case).

196 to build (-jenga)

1.	-aːka	A_1	1-26, 35, 40-44
2.	-aka	A_2	45-105
3.	-tuma	B	27-39

Both forms subsumed under A are related to CB *-yák- C.S. 1903. Form B also occurs under the keywords *263 to sew* and *421 to plait*. According to Möhlig (1974a: 138), the verb *-tuma* originally denotes a specific technique in building a house, namely putting up a framework made of wood.

197 house (nyumba)

1.	ɲɔmba	A_1	1-44c, 70, 73, 78, 79, 84
2.	ɲʊmba	A_2	45-69, 71, 72, 74-77, 80-83, 85-105

Both forms of Central Kenya Bantu are related to CB *-yùmbá C.S. 2168.

198 wall (ukuta)

1.	rʊ.ðingɔ	A	1-44c, 98-105
2.	ʊ.kʊta	B	45-58, 60-69, 71, 78, 85, 87, 89, 91, 96, 97
3.	ʊ.βai	C	51, 59, 70, 72, 73, 74, 75-84, 86-88, 90, 92-95

This items demonstrates Swahili influence on Kamba. While all of the dialects in the vicinity of Mt. Kenya show form A, presumably genuine to this area, Kamba shows the Swahili loans *ʊ.kʊta*. Some Kamba locations also show another unrelated form C.

199 roof (paa)

1.	ɪ.gʊrʊgʊrʊʊ	A	1-25
2.	ɪ.tara	B	7-39
3.	kɪ.gangɔ	C	40-44
4.	kɪ.ala	D_1	45-55, 57-71, 73, 75, 77, 78, 80-82, 88-91, 93, 95
5.	ky.ala	D_2	56, 72, 74, 76, 79, 83-87, 92, 94
6.	ma.barita	E_1	98
7.	ma.bati	E_2	101
8.	rʊ.gitɔ	F_1	100
9.	rʊ.gita	F_2	102
10.	w.ɪmɪba	G_1	104
11.	mʊ.ɪmbɪa	G_2	105

The relatively high diversity of the items above is due to different concepts. The stem *-gʊrʊ-* denotes the notion of 'up, above' (cf. Benson 1964: 130). According to Möhlig (1974a: 138), form B describes a crawl space below the roof trestle, commonly used for the storage of firewood. Both forms subsumed under D are presumably loanwords in Kamba as the occurrence of /l/ indicates. The two forms subsumed under E go back to Swahili *mabati*, a roof made of corrugated metal sheets.

200 window (dirisha)

1.	ndɪrica	A_1	1-5, 9-12, 14, 15, 17-25
2.	ndigica	A_2	6-8, 13, 16
3a.	ndiri:ca	A_3	26-44, 98-101, 103
3b.	ndiri:sa	A_3	102, 104, 105
4.	ndɪlɪʃa	A_4	45-97

All of Central Kenyan Bantu shows loanwords going back to Swahili *dirisha*. The relatively high degree of diversity indicates parallel borrowing. The two forms subsumed under A_3 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a, Ndia und Gichugu).

201 door (mlango)

1a.	mU.rangɔ	A	1-44c, 98-105
1b.	mU.angɔ	A	45, 49-52, 55-58, 60-62, 64-97
2.	mU.ɔmɔ	B	46-48, 53, 54, 59, 63

Both forms subsumed under A are related to CB *-dàngò C.S. 552 and treated as identical (*R_1/_/a, ɛ, ɔ, U > /Ø/ in Kamba). Form B is related to CB *-dòmò C.S. 652 with the original meaning *015 mouth*.

202 to open (-fungua)

1.	-rUgUra	A	1-30, 40-44
2a.	-PINGURA	B_1	16a, 26, 31-39, 44b, 98-103, 105
2b.	-βingUa	B_1	46-61, 63, 64, 65, 67, 68, 69, 70, 72, 74-76, 80, 81, 85, 94-97
3.	-βungUa	B_2	45, 57, 62, 66, 67, 71, 91-93
4.	-βingwa	B_3	73, 77-79, 82, 83, 84, 86-90
5.	-βungwa	B_4	98
6.	-ðingUra	B_5	104

All subsumed under B forms are possibly connected to CB -bàŋgud- C.S. 59a. Under B_1, the following forms are attested: -*vingUra* (Embu, Mbeere), -*ɦingUra* (Meru, Tharaka, Gikuyu), and -*βingUr a* (Gichugu). These two forms correspond regularly to -*βingUa* in Kamba and are treated as identical (*P_1 > /β/ and *R_1/_/a, ɛ, ɔ, U/ > /Ø/ in Kamba). For the two forms B_2 and B_4, borrowing from Swahili seems likely.

203 to shut (-funga)

1.	-PINGA	A_1	1-44c, 46-61, 63-88, 90, 92-103, 105
2.	-ringa	A_2	104
3.	-βunga	A_3	45, 62, 89, 91

The following forms are subsumed under A_1 (*P_1): -*ɦinga* (Gikuyu, Chuka, Meru, Tharaka), -*vinga* (Embu, Mbeere), -*βinga* (Kamba, Ndia). Form A_3 is probably a Swahili loan.

204 to enter (-ingia)

1.	-kUrUka	A	1-15
2.	-tɔŋa	B	7, 8, 14, 22, 24, 26, 31-39
3.	-ðUngıra	C_1	8, 10, 16-30, 35, 39c, 40-44
4.	-ingıra	C_2	98-101, 103, 104
5.	-ɦingıra	C_3	102, 105
6.	-lika	D	45-97

The occurrence of /l/ suggests that form D is a loanword. Neither a source word or a donor langue can, however, be identified.

205 room (chumba)

1.	ru:mu	A_1	1-44c, 100
2.	lumu	A_2	50, 56, 58-61, 66, 72, 73, 77-79
3.	ka.ɲɔmba	B_1	1-44c, 104, 105
4.	kı.sUmba	B_2	45, 47, 48, 53, 64, 88, 92
5.	ky.Umba	B_3	52, 55, 62, 71, 81-85, 89, 90, 96
6.	ky.Umbwa	B_4	67, 68, 87, 93-95
7.	ɲ.Umba	B_5	49, 51, 57, 63, 70, 76, 74, 80, 97, 98

8.	ɲ.ɔmba	B_6	99, 101, 102
9.	ðɛgi	C	103

Homes divided into single rooms are a relatively recent innovation in Central Kenya, as houses in the Kenyan Highlands used to be constructed without such a division in precolonial times. The concept is, therefore, mostly expressed by loandwords from English (A) or Swahili (B). Mathira shows an isolated form C, that is unattested in the other dialects of Central Kenyan Bantu.

206 enclosure for animals (zizi)

1.	nkanata	A	1-12, 15
2.	rU.aga	B_1	7, 13-25
3.	rU.a:ga	B_2	26-30, 40-44
4.	rU.aga:	B_3	31-34
5.	kɪ.aga:	B_4	35-39
6.	kɪ.ugu	C_1	40, 42a
7.	kɪ.ɪgu	C_2	44a, 44b
8.	kɪ.ugU	C_3	101-105
9.	kɪ.ɛgU	C_4	100
10.	ky.UU	C_5	50, 53, 55, 56, 57, 62-97
11.	nʒa	D_1	45, 47, 48
12.	nza	D_2	50, 54, 59, 61
13.	kɪ.ɦingɪrɔ	E	98
14.	U.ɲɔmba	F	99
15.	bɔma	G	46
16.	kɪ.tUU	H	49, 51, 58, 60
17.	kɪ.βanda	I	52

The high diversity of the items above indicates parallel borrowing of the forms subsumed under B and C. Possible donor languages are, however, not identified. Moreover, there are different concepts involved: Form E is derived from the verb *-ɦingɪra* with the meaning *204 to enter*. Form F is connected to the keyword *197 house*. Form G, an isolated loan, goes back to the Swahili word *boma*, which denotes any kind of raised structure, such as a fence. The form I, also a loan from Swahili, denotes the concept of 'bed'.

207 fence (ua)

1.	rU.ɛgɔ	A	1-26
2.	rU.i:rigɔ	B_1	27-35, 42a, 99
3.	w.iiɔ	B_2	45-97
4.	kU.iriga	B_3	102
5.	rU.giri	C	35-44, 98, 100, 101, 103, 105
6.	rU.ɪnci	D	40-44

Most of the forms listed here are possibly related to CB *-bíg- 'to fence in' C.S. 118. Form B_1 and B_2 are regularly related (*R_1/_/i/ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba) and treated as phonologically divergent forms based on the different shapes of the noun class markers. Form C is connected to the verb *-giria* (cf. *185 to forbid*). Form D, possibly, goes back to English *fence* (Möhlig 1974a: 140).

208 well (kisima)

1.	kɪ.ðima	A_1	1-97
2.	gɪ.ðima	A_2	100
3.	gɪ.rima	A_3	98
4.	i.rima	A_4	99, 101-105

The forms subsumed under A_1 and A_2 are related to CB *-cíḿá C.S. 353. Forms A_3 and A_4 are also attested with the meaning *447 hole*.

209 garden (bustani)

1a.	mU.gUnda	A_1	13-39, 98-102, 104, 105
1b.	mU.Unda	A_1	45, 47-75, 77-94, 96, 97
2.	mU.Unda	A_2	7-12, 15, 40-44c
3.	m.uunda	A_3	1-6
4.	mU.Undu	A_4	46, 76
5.	kɪ.tUU	B	95

All forms subsumend under A are related to CB *-gùndà C.S. 897. The two forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba). Form A_2 is identical to the Kamba form but irregular to form A_1 and the relavant CB item. Therefore, this form is considered a Kamba loan in the varieties of Miutini and Tharaka. If these dialects had regularly derived this word from CB, a form showing /g/ would be expected.

210 fireplace (jiko)

1.	r.iikɔ	A_1	1-39, 98, 101, 102, 104, 105
2.	rɪ.i:kɔ	A_2	40-44
3.	ikɔ	A_3	45-55, 57-60, 62, 64, 71, 81, 86, 88, 92, 93, 97
4.	ɪ.ikɔ	A_4	56, 61, 66, 67, 70, 73, 74, 77-79, 82, 84, 85, 87, 89, 90, 91, 94, 96
5.	ma.ikɔ(ni)	A_5	72, 76, 95
6.	yɪ.ikɔ	A_6	63, 65, 68, 69
7.	ðikɔ	A_7	99
8.	njikɔ	A_8	100
9.	ky.uiɔ	B	75, 80, 83
10.	mw.akinɪ	C	103

All forms subsumed under A are related to CB *-gi̧kò C.S. 828. Form A_8 is possibly influenced by the Swahili word for fireplace *jiko*. Form C is a circumscription, literally meaning 'in the fire' (cf. *212 fire*).

211 to kindle fire (-washa moto)

1.	-PUPA	A_1	27-30, 50, 53, 56, 60-63, 65, 68, 69, 71, 72, 75-79, 81, 82, 84, 85, 86, 88, 91, 93-97, 100, 101
2.	-ɦua	A_2	40-44
3.	-a:kia	B_1	1-39, 98, 102, 103
4.	-a:kɪrɪria	B_2	99
5.	-awakia	B_3	105
6.	-a:tia	C	12, 17-26
7.	-akania	D_1	47, 51, 52, 54, 55, 57-59, 80, 87, 90
8.	-akany'a	D_2	48, 64, 66, 67, 73, 89
9.	-akana	D_3	46

8.	-kwatia	E	45, 49, 70, 83, 92

In accordance with dia-series *P_1, the following forms are subsumed under A_1: *-ɦuɦa* (Chuka, Nyeri, Kiambu) and *-βuβa* (Kamba). All of these forms go back to CB *-pṳ̀ṳ̀p- 'blow' C.S. 1632. The forms subsumed under B and D are possibly related to CB *-bàk- 'to kindle' C.S. 34. Related forms also occur under the keyword *213 to burn up*, as does form E.

212 fire (moto)

1.	mʊ.anki	A_1	1-30, 40-44
2.	mʊ.a:ki	A_2	31-39
3.	mw.aki	A_3	45-105

213 to burn up (-choma)

1.	-Pɪ:ðIA	A_1	1-26, 39c-44
2.	-PɪPIA	A_2	27-39b
3.	-bɪbya	A_3	45-52, 56, 60, 61, 63-67, 69, 72-97
4.	-Pɪa	A_4	59, 103
5.	-bya	A_5	68
6.	-bɪðya	A_6	70
7.	-kwatia	B	58
8.	-akana	C	53, 54, 55, 57
9a.	-cina	D	98-101
9b.	-sina	D	102, 104, 105

In accordance with the dia-series *P_1, the following forms are subsumed: A_1 = *-ɦɪ:ðia* (Meru, Tharaka) and *-vɪ:ðia* (39c Mbeere); A_2 = *-ɦɪɦia* (Chuka) and *-vɪvia* (Embu, Mbeere); A_4 = *-βɪa* (59 Kamba) and *-ɦɪa* (103 Mathira). The forms subsumed under D are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia, and Gichugu). The forms B and form C also occur under the keyword *211 to kindle fire*.

214 charcoal (kaa)

1.	ɪ.kara	A_1	1-44c
2a.	ma.kara	A_2	98-100, 102-105
2b.	ma.kaa	A_2	45-97
3.	kara	A_3	101

All of the forms above are related to CB *-kádà CS 980. The two forms subsumed under A_2 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

215 smoke (moshi)

1.	tɔ:gi	A_1	1-15
2.	tɔ:gɔ	A_2	16-25
3.	NTɔ:Gɔ	A_3	26-44, 98-105
4.	syʊkɪ	B	45-97

In the dialects on the slopes of Mt. Kenya, the following forms subsumed under A_3 are attested: *ntɔ:gɔ* (Chuka, Tharaka) and *ndɔ:gɔ* (Embu, Mbeere, Gikuyu, Ndia, Gichugu). Form B, restricted to Kamba, is connected to CB*-yúkį̀ C.S. 2158.

216 ashes (majivu)

1.	mʊ.ju	A_1	1-12, 14, 15
2.	mʊ.u	A_2	13-97

3.	mU.ɦu	A_3	98-105

The relevant CB item is *-bú C.S. 216. The reason for the variation above is unclear; borrowing seems likely, as only A_2 is regularly derived from Common Bantu.

217 to extinguish (-zima)

1a.	-PɔRIA	A	1-44, 98-103, 105
1b.	-bɔsya	A	45-97
2.	-ðima	B	104

In accordance with the dia-series $*P_1$, the following forms are subsumed under *-PɔRIA: -ɦɔria* (Meru, Tharaka, Gikuyu), *-vɔria* (Embu, Mbeere), and *-βɔria* (Gichugu). They are treated as identical with the Kamba form *-bɔsya* ($*P_1$ and $*R_2$ /_/i/ > /sy/ in Kamba). Form B, only attested for Ndia, is an isolated Swahili loan.

218 firewood (kuni)

1.	NKU	A	1-105

All of Central Kenyan Bantu uses the same form going back to CB *-kúị̀ C.S. 1181. The following forms are attested ($*NK_1$): *nkU* (Chuka, Meru, Tharaka) and *ngU* (Gikuyu, Ndia, Gichugu, Kamba).

220 cooking stones (meko, mafiga)

1.	ma.arɪ	A	1-21, 24, 43-44
2.	ma.ari:kɔ	B	24, 35-42c
3.	ma.biga ma kU.ruga, ma.ðiga ya kU.ruga	C_1	22-34
4.	ma.ɦiga (ma ri.ikɔ)	C_2	98-103, 105
5.	ma.riga ma kUgɪra	C_3	104
4.	ikɔ	D_1	45-55, 57-60, 62, 64, 71, 81, 86, 88, 92, 93, 97
5.	ɪ.ikɔ	D_2	56, 61, 66, 67, 70, 73, 74, 77-79, 82, 84, 85, 87, 89, 90, 91, 94, 96
6.	ma.ikɔ(ni)	D_3	72, 76, 95
7.	yɪ.ikɔ	D_4	63, 65, 68, 69
10.	ky.uiɔ	E	75, 80, 83

The forms subsumed under C are related to CB *-píɣà C.S. 1548. They are literal translations of the English keyword (Möhlig 1974a: 142). The forms subsumed under D and E also occur under the keyword *210 fireplace*.

221 to cook (-pika)

1a.	-ruga	A	1-44c, 98-105
1b.	-ua	A	45-97

Both forms are related to CB *-dụ́g- C.S. 734 and treated as identical ($*R_1$/_/u/ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba).

222 to fry (-kaanga)

1a.	-ka:ranga	A	1-44c, 98-105
1b.	-kaanga	A	45-97

Both forms are related to CB *-kádang- C.S. 982 and treated as identical ($*R_1$/_/a, ɛ, ɔ, U> /Ø/ in Kamba).

224 to boil (-chemka)

1.	-ðɛrUka	A_1	1-44c
2.	-ðɛUk(y)a	A_2	45-48, 50, 52, 54-56, 62-64, 66, 67, 71, 73, 76, 80, 81, 85, 88, 91, 92, 95-97

3.	-ðɛʊsya	A_3	49, 51, 53, 57, 58, 59
4.	-ðɛrʊkia	A_4	98, 100, 101, 103-105
5.	-camʊka	B_1	20, 22, 25, 27-29, 31, 35, 43-44b
6.	-samʊk(y)a	B_2	60, 61, 69, 74, 75, 77-79, 82-84, 89
7a.	-camʊkia	B_3	99
7b.	-samʊkia	B_3	102
8.	-byʊbya	C	65, 68, 70, 72, 86, 87, 90, 93

The forms subsumed under B are Swahili loans. Both forms A and B occur in the causative in some cases.

225 metal cooking pot (sufuria)

1.	cuburi̱a	A_1	1-16
2.	cuburia	A_2	17-30
3.	subulia	A_3	72, 86
4.	ciriːa	B_1	38, 39a, 39b
5.	cʊːriːa	B_2	36, 37, 40-44
6.	(ɪ).silia ~ silya	B_3	69,74-76, 80, 81, 87, 89, 90, 92-94, 97
7.	sulia ~ sulya	B_4	82-84
8.	ɪ.silia	B_5	45-61, 63-68
9.	(ɪ.)sulia	B_6	88, 91, 95, 96
10.	ðapuri̱a, cafuri̱a	C_1	31-34
11.	ðaburiːa	C_2	35, 39c
12.	ðuburia	C_3	98-100, 104
13.	ðaburia	C_4	101-103, 105
14.	sɔlia	D	62, 70, 71, 73, 77-79, 85

All of the items above denote a metal cooking pot known as *sufuria* in Standard Swahili. According to Möhlig (2014: 7), the high diversity of the items above is due to parallel borrowing from different Swahili dialects. The forms subsumed under A are loans from Standard Swahili, as is form C_3, attested for most of Gikuyu. The forms C_1, C_2, and C_4 go back to the word *safuria* used in Giryama and Pokomo. This form spread into Kamba from Embu-Mbeere resulting in form D. The forms B_1, B_3, and B_5 go back to *sifilia*, commonly used in the Lamu dialect of Swahili. Möhlig (ibid.) concludes from this that the notion of metal cooking pot was first borrowed from the coastal hinterland into Kitui- and Mumoni-Kamba as well as into Embu and Mbeere. In a second wave, the concept spread from Lamu Swahili into the Central Kenya Bantu languages. Finally, the Unguja dialect of Swahili is the donor of the most recent variants that go back to Standard Swahili *sufuria*.

226 earthen water pot (mtungi)

1.	ɲʊngʊ	A	1-46, 99-103
2.	mbisʊ	B_1	48, 49, 53, 54, 61, 62, 64-71, 73, 74, 76-85, 87-96
3.	mbisɔ	B_2	47, 50-52, 55, 57, 59, 60
4.	mʊ.tʊngi	C	56, 63, 72, 75, 86, 97, 98, 104, 105

Form C is a Swahili loan, restricted to some locations in Kamba as well as in Nyeri, Ndia, and Gichugu.

227 to draw water (-teka maji)

1.	-TAPA	A	1-44c, 46, 56, 57, 67, 69-86, 88, 89, 91-105
2.	-uta	B	45, 47-56, 58-66, 68, 87, 90

Form A is related to CB *-táp- C.S. 1681. The following forms are attested: *-taɦa* (Gikuyu, Gichugu, Chuka,

Meru, Tharaka), -*tava* (Embu, Mbeere), and -*taβa* (Ndia, Kamba).

228 to carry water (-chukua maji)

1.	-kamata	A	1-26, 40-44
2.	-kuua	B_1	27-39, 40, 99-103, 105
3.	-kua	B_2	45-96
4.	-ua	B_3	98
5.	-ɪa	B_4	104

229 to pour (-mimima)

1.	-ɪːtʊʊra	A_1	1-26, 40-44
2.	-ɪːtʊrʊra	A_2	27-39
4.	-ɪːta	A_3	33a, 36, 38a, 39a
5.	-ɪta	A_4	45-48, 50, 51, 53-64, 66, 67, 69, 71, 73-80, 82-84, 86-90, 92, 94, 95
6.	-ita	A_5	99-103, 105
7.	-ɪtʃa	A_6	93, 96
8.	-ɪtɪkɪɪtʃa	A_7	85
9.	-ɔnɔʃa	C	49, 52, 65, 70, 72, 81, 97
10.	-ɦʊsia	D	104
11.	-tia	E	98

All forms subsumed under A possibly go back to CB *-yi̯t- C.S. 2094. Form E, presumably, is a Swahili loan from -*tia* 'to put into'.

230 to shake tr. (-tikisa)

1.	-inainia	A_1	1-44c, 98, 100-105
2.	-ɛynɛnia	A_2	99
3.	-ðingiðia	B_1	45, 46, 47, 50-55, 57-61, 70, 83, 90
4.	-ðingiðya	B_2	48, 62, 62, 63, 65, 66, 67, 71, 72, 75, 82, 84-88, 92, 94, 96
5.	-ðingiða	B_3	73
6.	-ðingiðangya	B_4	69, 89, 93
7.	-ðuka	C_1	76
8.	-ðukya	C_2	64
9.	-ðukania	C_3	74, 80, 97
10.	-ðukaŋa	C_4	68, 77, 78, 81
11.	-sukaŋa	C_5	79

All forms subsumed under C, that occur in a few Kamba locations, are possibly loans from Swahili -*suka* (cf. *284 to churn*).

231 to strain (-chuja)

1.	-CUNKA	A	26-39, 56, 64-67, 70, 72-82, 84, 86, 88-90, 92, 94, 96-101
2.	-kɛmba	B_1	1-25
3.	-kɛmbia	B_2	40-44
4.	-biba	C	45-55, 57-60
6.	-kɛla	D_1	83, 85, 87

7.	-kɛlɛka	D_2	62, 71, 95

Form A is irregularily connected to CB *-cúng- C.S. 419 and is attested as the following forms, that are treated as identical (*C_1/_/i, u/ and *NK_1): *-cunka* (Chuka), *-cunga* (Embu, Mbeere, Gikuyu), and *-sunga* (Kamba). The forms subsumed under D are loandwords of unknown origin.

232 to fill (-jaza)

1a.	-ᴜJURIA	A_1	1-16, 40-44
1b.	ᴜSᴜkya	A_1	45-68, 70, 71, 73-85, 87-97
2.	-ɪJᴜRIA	A_2	17-39
3.	-iyᴜria	A_3	98, 99, 101, 102, 104
4.	-iɦᴜria	A_4	100
5.	-iβᴜria	A_5	105
6.	-gᴜa	B	103

The two forms subsumed under A_1 are treated as identical (*J_1 and |*R_2+ i|). The relatively high diversity may indicate borrowing. Possible donors as well as the direction of borrowing are, however, unclear.

233 to mix (-changanya)

1.	-ungania	A	1-26, 40-44
2.	-ringanıra	B_1	25, 27-30
3.	-ringania	B_2	35-39
4.	-tukania	C	31-34, 98, 100-105
5.	-bulaɲia	D_1	48, 61-65, 67-70, 72, 73, 77-79, 81, 82, 84, 85, 86, 88, 89, 91, 93, 97
6.	-bulania	D_2	45, 46, 47, 49-60, 71, 74-76, 80, 83, 87, 90, 92, 94-96
7.	-ðɔgɔndania	E	99

The forms subsumed under B are possibly connected to the verb *-ringa* which occurs under the keyword *164 to hit, strike* and is used as in various contexts (e.g. *284 to churn*, *417 to iron*). Form B_1 shows a reciprocal-applicative, form B_2 a reciprocal-causative derivation of the verb *-ringa*. In this sense, *-ringania* literally means 'to cause to hit one another', i.e. 'to mix'. The two forms subsumed under D are probably loans in Kamba, as the occurrence of /l/ suggests. The donor is, however, not yet identified. Form E goes back to Swahili *-changanya*.

234 to cover (-funika)

1.	-kunıka, -kunıkıra	A_1	1-47, 52, 54-71, 74-76, 80, 82-85, 87, 88, 90-105
2.	-kunıkilya	A_2	78, 79, 81
3.	-bwʸıka	B	48, 50, 51, 53, 72, 73, 86, 89
4.	-bunıka	C_1	49
5.	-bunıkilya	C_2	77

The two forms subsumed under A are related to CB *-kṷnik- C.S. 1268a. Form A_2, however, seems to be a loan that originates in the languages on the slopes of Mt. Kenya. The two forms subsumed under C are loans of unknown origin.

235 to uncover (-funua)

1a.	-kunᴜra	A	1-44c, 98-105
1b.	-kunᴜa	A	45, 46, 47, 49, 51-54, 56, 57, 59-63, 65-71, 73 ,75-82, 84, 87, 88, 90-97
2.	-bwıkᴜa	B	50, 58, 64, 72, 83, 86, 89
3.	-bukᴜa	C	55

4.	-bungʊa	D	74
5.	-bingʊa	E	85

The two forms subsumed under A are related to CB *-kʉ́nud- CS 1268b and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). Forms D and E also occur with the meaning *202 to open*.

236 to cut (-kata)

1.	-tɛma	A	1-45, 51, 59, 60, 67, 72, 76, 80, 86, 92, 96
2.	-tinia	B	98-105
3.	-tila 'cut off'	C	46-50, 52-58, 61-66, 68-71, 73-75, 77-79, 81-85, 87-91, 93-95, 97

Form A is related to CB *-tém- C.S. 1703. Form C is a loan, suggested by the occurrence of /l/. A possible source word is **tlaaq* reconstructed by Kießling and Mous (2003: 338) for West-Rift Southern Cushitic with the meaning 'to cut down'.

238 to pound (-twanga)

1.	-kima	A_1	5, 13-15, 18-19b, 22, 28, 30, 32, 56, 59, 63-69, 72, 73, 75, 80-82, 85-95, 98, 99, 102
2.	-kimanga	A_2	84
3.	-ʊ:raga	B	20, 31, 33-35
4.	-Pʊ:RA	C_1	1-12, 16, 17, 21, 23-27, 29, 36-39
5.	-ɦʊrafɦʊra	C_2	100
6.	-βɔa	C_3	76
7.	-kʊna	D_1	45-51, 53, 55, 57-61, 96
8.	-kʊnanga	D_2	77
9.	-tumba	F_1	52, 54
10.	-tumba-tumba	F_2	78, 83
11.	-tumbala	F_3	79
12.	-ananga	G	62, 71, 85
13.	-inda	H	70, 74
14.	-twanga	J	97
15.	-ðɪa	L	101
16.	-ðirangia	M	104

The relatively high diversity of this item can be explained by the fact that different concepts are used in order to desribe the notion of pounding. The stem *-raga* occuring here in form B, for example, is also attested under the keywords *301 to kill* and *361 to break*. Form C_1 also occurs under the keyword *163 to beat*, attested here as *-vʊ:ra* in Mbeere as well as *-ɦʊ:ra* in Meru and Chuka (*P_1). Form D_1 also occurs under the keyword *164 to hit, strike*. In short, different notions such as killing, breaking, beating and hitting are used here to translate the English word *to pound*. All forms subsumed under F are onomatopoetica. Form J is an isolated Swahili loan. Form L also appears under the keyword *239 to grind*.

239 to grind (-saga)

1.	-ðia	A_1	1-97
2.	-ðɪa	A_2	98-105

The two forms are possibly related to CB *-cị̀d- C.S. 350.

240 mortar (kinu)

1a.	NTɪRɪ	A_1	1-16, 19a, 20, 33b, 34b-44
1b.	ndɪrɪ	A_1	101-103, 105
1c.	ndɪɪ	A_1	45-97
2.	gɪ.ðɪi	A_2	98
3.	gɪ.ndɪi	A_3	100
4.	mpU:ri	B	17-24
5.	NKIMI	C	25-34a

In accordance with the correspondence series and *NT and *R_1/_/ɪ/, the following forms are subsumed under A_1: *ntɪrɪ* (Imenti, Miutini, Igoji, 19a und 20 Mwimbi), *ndɪrɪ* (33b und 34b Embu, Mbeere, Tharaka, Gikuyu, Gichugu), and *ndɪɪ* (Kamba). The following forms are subsumed under C (*NK): *nkimi* (Chuka) and *ngimi* (Embu).

241 pestle (mchi)

1.	mU.tɪrɪ	A	1-12
2.	mU.kimɔ	B_1	10, 13-24, 31-34
3.	mU.kimi	B_2	25-30, 35-37, 39c
4.	mU.Uðɪ	C_1	38-44, 101-105
5.	mU.ðɪ	C_2	46, 50, 56, 62, 64, 65, 66, 68-97
6.	mw.ɪðɪ	C_3	45, 47, 48, 49, 51-55, 57-61, 63
7.	U.ðɪa	C_4	99
8.	mU.ikɔ	D	98
9.	mU.ɦɪa	E	100

Form A is related to the keyword *240 mortar*. Some speakers, apparently, do not distinguish between *mortar* and *pestle*, as both these tools are always used together. All forms subsumed under C are related to the verbs *-ðia* / *-ðɪa* attested under the keyword *239 grind*. All forms subsumed under C, therefore, literally mean 'grinder'. The forms D and E are possibly related to the concept of *443 rock* (see also *220 cooking stones*).

243 chair (kiti)

1.	gɪ.tɪ	A	1-44c, 98-105
2.	gɪ.kɔngɔrɔ	B	40-44
3.	kɪ.βɪl:a	C	45-82, 84-97
4.	kɪ.tumbɪ	D	83

244 mat (jamvi, mkeka)

1a.	mU.gɛka	A	1-44c, 98-102, 104
1b.	mU.kɛka	A	45-97

Both forms are related to CB *-kéká p.s. 290 and treated as identical (cf. *K_3 ; Dahl's Law inactive in Kamba).

246 basket (kikapu)

1a.	gɪ.kabU	A_1	1-29, 33a, 34b, 103, 104
1b.	kɪ.kabU	A_1	45-97
2.	gɪ.kambU	A_2	30-34, 37, 39a, 39c
3.	gɪ.ka:bU, ɪ.ka:bU	A_3	35-44
4.	gɪ.kabu	A_4	98-102, 105

5.	ky.ɔndɔ	B	65, 69, 85, 94

All forms subsumed under A are loans from Swahili. The relatively high degree of divergence between these forms indicates parallel borrowing. The two froms subsumed under A_1 are treated as identical (cf. *K_3; Dahl's Law inactive in Kamba). Form B also occurs under the keyword *277 barn* and is probably a general term for a place for storage.

247 bottle (chupa)

1.	mʊ.cuːba	A_1	1-30, 35-39
2.	mʊ.cʊːba	A_2	31-34, 35-39
3.	cʊʊba	A_3	40-44
4.	sʊba	A_4	45-55, 57-61, 63-67
5.	ʃuba	A_5	56, 90
6.	kɪ.sʊba	A_6	62, 69-81, 83, 85, 86
7.	kɪ.tʊba	A_7	68, 82, 84, 87-89, 91-97
8a.	cuba	A_8	98-101, 103
8b.	suba	A_8	102, 104, 105

All of the forms listed here are loans from Swahili. There is a constructed CB form *-cúpà C.S. 426 for this item, which, however, is listed under the meaning 'calabash' by Guthrie. It is safe to assume that all informants describe a glass bottle when using one of the forms above. The relatively high diversity of these forms indicates parallel borrowing from Swahili. The two forms subsumed under A_8 are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia und Gichugu).

249 hammer (nyundo)

1.	nɔndɔ	A_1	3-5
2.	ɲɔndɔ	A_2	1, 2, 6-14, 16, 17, 21, 24, 31-44, 46, 47, 53, 54, 55, 57, 96, 98-101, 105
3.	ɲɔntɔ	A_3	15, 18-20, 22, 23, 25, 26, 42c
4.	ɲʊndɔ	A_4	56, 93, 95
5.	ɲundɔ	A_5	102-104
6a.	kɪ.riba	B	26-30
6b.	kɪ.iba	B	45, 48-52, 55, 57-92, 94, 97

There are two relevant forms constructed for CB: *-dòndò C.S. 706 and *-dúndò C.S. 706. According to Möhlig (1974a: 145 f.), form A_1 is gradually being replaced by the other forms subsumed under A. These are, in regard to the first consonant, most similar to the relevant Swahili word. Möhlig (ibid.) also states that the forms subsumed under B are the oldest words for this keyword. They are treated as identical (*R_1/_/ɪ/ > /Ø/ in Kamba).

250 matchet (panga)

1.	kɪ.banga	A_1	1-46, 48, 50-52, 56, 58-64, 66. 67, 70-74, 76-81, 86, 89, 93, 95
2.	ɪ.banga	A_2	53, 55, 57, 68, 94
3.	banga	A_3	98, 100-102, 105
4.	ɦanga	A_4	99
5.	kɪ.lɔbɔɔ 'half rupee'	B	49, 75, 82-84, 90-92, 96, 97
6.	ngɔbu	C_1	47
7.	ɪ.kɔbu	C_2	69, 85, 87, 88
8.	nzɔmɔ	D	54, 65
9.	gɪ.cikɔ	E	103

The relatively high diversity of the items above is due to parallel borrowing of the forms subsumed under A. They all go back to the relevant Swahili word. Form E also occurs under the keyword *268 hoe*.

251 axe (shoka)

1a.	ka.ðɔka, ɪ.ðɔka	A_1	5, 12, 17, 18, 21-30, 40-44
1b.	ɪ.ðɔka	A_1	45-97
2.	ɪ.cɔka, cɔka	A_2	1-3, 9, 20, 31, 32, 36, 39b
3.	ntU:ru	B_1	1-6
4.	ga.tU:ru, ɪ.tU:ru	B_2	7-22, 27
5.	ɪ.ðanU̲a	C_1	31-34, 38, 39, 100
6.	ka.ðɛnU̲a, ɪ.ðɛnU̲a	C_2	35-37
7.	ɪ.ðanwa	C_3	98, 101-105
8.	ɪ.ðɛnɔ	C_4	99

All forms subsumed under A are connected to CB *-còká C.S. 372. However, only A_1 is regularly derived from the CB form ($*C_3$). A_2, on the other hand, is directly borrowed from Swahili. The two forms subsumed under B are borrowed from Maasai *en-tólú* (Tucker & Mpaayei 1955: 283).

252 knife (kisu)

1.	KA.JIU	A_1	1-17
2.	KA.PIU	A_2	18-47, 49-55, 57-60, 72, 78, 98-105
3.	ka.byU	A_3	48, 56, 61-71, 73-77, 79-97

In accordance with the dia-series $*P_1$, the following forms are subsumed under A_2: *ka.viU* (Embu, Mbeere), *ka.ɦiU* (Mwimbi, Muthambi, Chuka, Tharaka, Gikuyu), and *ka.βiU* (Ndia, Gichugu, Kamba). The skewing of form A_1 indicates borrowing.

253 sharp (-kali)

1.	-U:gɪ	A_1	1-44c
2.	-ugɪ	A_2	98, 100, 101, 103-105
3.	-Uɪ	A_3	48, 50, 63-66, 69, 72, 88, 92
3.	-ɔɪ	B	45-47, 49, 51-62, 67, 68, 70, 71, 73-87, 89-91, 93, 95, 97
4.	njura	C	102
5.	wɛnzi 'razor'	D	65, 88, 94, 96

254 blunt (-butu)

1.	-TU:PU	A_1	1-44c
2a.	-tu̲bu	A_2	45-64, 66-87, 98-91, 93, 95
2b.	-tuɦu	A_2	100-105
3.	-tuɦa	A_3	99
4.	ɪ.lunzu	B	65, 88, 92, 94, 96, 97

All forms subsumed under A are related to CB *-tu̱u̱p- C.S. 1880. The two forms subsumed under A_2 are treated as identical ($*P_1$). Form B, restricted to a few Kamba locations, is a loan of unknown origin.

255 broom (ufagio)

1.	kɪ.ɛ:gɛri	A	1-7, 9, 11, 15, 16
2.	Kɪ.PA:TI	B_1	8, 10, 12-14, 17-39, 104

3.	kɪ.ɦa:tɔ	B_2	98-103, 105
4.	-gɪ.cia:ti	C	40-44
5.	U.tuti	D_1	45-48, 50-52, 54, 56, 57, 62, 63, 64, 70, 71, 74, 77-79, 83, 91, 94
6.	kɪ.tuti	D_2	49, 68
7.	U.βyaɪɔ	E	49, 53, 55, 58-61, 65-67, 69, 72, 73, 75, 76, 80-82, 84, 85, 86-90, 92, 93, 95-97

In accordance with the dia-series *P_1, the following forms are subsumed under B_1: *kɪ.ɦa:ti* (Mwimbi, Muthambi, Chuka, Miutini, Igoji), *kɪ.va:ti* (Embu, Mbeere), and *kɪ.βa:ti* (Ndia). All forms also occur under the relevant verb *256 to sweep*. Form E, restricted to Kamba, is borrowed from Swahili.

256 to sweep (-fagia)

1.	-ɛ:gɪra	A	1-16
2.	-PA:TA	B	17-39, 98-105
3.	-cia:ta	C	40-44
4.	-tuta	D	45-58, 60-71, 73-75, 77-81, 83, 87-91, 93-97
5.	-βyaɪa	E	59, 72, 76, 82, 84-86, 92

In accordance with the dia-series *P_1, the following forms are subsumed under B: *-ɦa:ta* (Mwimbi, Muthambi, Chuka, Kiambu, Murang'a, Nyeri, Mathira), *-va:ta* (Embu, Mbeere), and *-βa:ta* (Ndia, Gichugu). All forms also occur under the keyword *255 broom*. Form E, restricted to a few locations in Kamba, is borrowed from Swahili.

257 lamp (taa)

1.	ta:wa	A_1	1-16, 104, 105
2.	taa	A_2	17-66, 68-93, 95-97, 102
3.	tawa	A_3	98-101, 103
4.	U.mUI	B	67, 94

All forms subsumed under A are loans from Swahili. Form B denotes the concept of 'torch'.

258 mirror (kio)

1.	kɪ.ɔ:ni	A	1-12, 16, 26, 40, 42
2a.	gɪ.ci:ciɔ	B_1	7, 13, 17-25, 27-39, 98-101, 103
2b.	gɪ.si:siɔ	B_1	102, 104, 105
3.	gɪ.cici	B_2	40-44
4.	kɪ.ɔ:ɔ	C_1	14, 15
5.	kɪ.ɔɔ	C_2	45-48, 50, 52, 53, 56-58, 60, 62, 66, 67, 69, 71, 73, 74, 75, 91, 93, 95, 97
6.	kɪ.siʃɔ	D_1	49, 61, 63, 64, 65, 68, 73, 77-85, 87-90, 92, 94, 96
7.	kɪ.ʃiʃɔ	D_2	70, 72, 76, 86
8.	kɪ.sisiɔ	D_3	51, 54, 55, 59

Form A is a derivation of *556 to see*. The two forms subsumed under B_1 are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia und Gichugu). These two forms are possibly borrowed from Kamba. In the Kamba dialects, the Swahili loan *kɪ.ɔɔ* prevails, which is also attested in Igoji.

259 rope (kamba)

1.	mU.rigi	A_1	1-12
2.	rU.rigi	A_2	13-30, 40-44
3.	mU.kanda	B_1	15, 16a, 18, 21, 28a, 29a, 31-39, 41-44, 98-100, 102-105

4.	ɪ.kanda	B_2	45-86, 89-97
5.	kɪ.ðɛkɔ	C	87, 88
6.	mʊ.kwa	D	101
7.	ʊ.lii	E	97

The two forms subsumed under A are related to CB *-dí̱gi̱ 'string' C.S. 613. A similar form is also attested as an isolated loan (E) in Southeast-Kitui-Kamba. In Kamba, the form *ɪ.kanda* prevails, which is used in Kamba text books (TLY Kamba Course Book 1: 31) and possibly goes back to Swahili *kanda* 'belt'.

260 knot (fundo)

1.	gɪ.kundwa	A_1	1-14, 16
2.	gɪ.kundɔ, ɪ.kundɔ	A_2	15, 17-44, 101, 103-105
3a.	ɪ.kundɔ	A_3	45-97
3b.	i.kundɔ	A_3	98, 99, 102
4.	gɪ.bungɔ	B	100

All forms subsumed under A are related to CB *-kṷ́ndò C.S. 1272. The two forms subsumed under A_3 are treated as identical, as class 5 /ɪ-/ in Kamba regularly corresponds to class 5 /i-/ in Gikuyu.

261 to hang up (-tundika)

1a.	-cuːria	A_1	1-44c, 98-101, 103
1b.	-suːria	A_1	102, 104, 105
1c.	-suːsya	A_1	56, 63-68, 70, 73, 75, 78, 79, 89-93, 96
2.	-susia	A_2	49-51, 57, 59, 60
3.	-anɪka	B	45-49, 52-55, 61, 62, 69, 71, 72, 77-87, 94
4.	-tʊlia	D_1	97
5.	-tʊlya	D_2	88
6.	-iya	E	76

The forms subsumed under A_1 are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia, Gichugu, Kamba and |*R_2+ i| > /sy/ in Kamba). Form B is possibly connected to CB *-mánik- C.S. 1285. The two forms subsumed under D are isolated loans in Kamba, probably originating from A_1.

262 to split (firewood) (-chanja)

1.	-aːtʊra(nga)	A_1	1-44c
2a.	-atʊra	A_2	98, 101-103
2b.	-atʊa	A_2	45-48, 51, 52, 54, 56, 57, 65, 77, 84, 94, 96
3.	-atʊanga	A_3	60, 75, 78, 79, 85
4.	-atwa	A_4	82
5.	-atwanga	A_5	80
6.	-atwaːnga	A_6	70, 73, 97
7.	-aðʊra	A_7	99
8.	-alia	B_1	49, 50, 53, 55, 58
9.	-alya	B_2	59, 61-64, 66, 68, 71, 72, 86, 87, 92
10.	-una 'to collect'	D	90
11.	-tilanga	E_1	76, 81, 89, 91, 95
12.	-tiangia	E_2	105

13.	-tɛmanga	F	74
14.	-tigiðania	G	100
15.	-tiɲa	H	104
16.	-aɪya 'to pile up'	I	93

The forms subsumed under A originate from CB *-yàt- C.S. 1946. Both forms subsumed under B are loanwords in Kamba, as the restricted distribution as well as the occurrence of /l/ suggest. The two forms subsumed under E are possibly also loans, whose origin is, however, unidentified. The two forms subsumed under A_2 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

263 to sew (-shona)

1.	-tuma	A	1-86, 88-99, 101, 102, 104
2.	-tigaða	B	100
4.	-sɔna	C	87

Form A is related to CB *-tṷm- C.S. 1865. It also appears under the keywords *196 to build* and *421 to plait hair*. Form C is a direct borrowing from Swahili, occuring in one location of Kitui-Kamba.

265 field (shamba)

1.	kɪ.ɛːni	A	1-21, 40-44
2.	kɪ.gwanja	B_1	22-25
3.	kɪ.wanza	B_2	48, 65, 69, 88, 92
4a.	kɪ.baːrə	C	26-39, 104
4b.	kɪ.ɦaːrə	C	99-101, 103
5a.	mʊ.gʊnda	D	98, 102, 105
5b.	mʊ.ʊnda	D	45-47, 49-61, 64, 66-68, 70, 72-79, 81-87, 89, 90, 91, 93-97
6.	kɪ.sɛsi	E	63, 80
7.	samba	F	62, 71, 86

The relatively high diversity of the forms is due to two factors: Firstly, different concepts are used to desribe the notion of 'field'. Secondly, different Swahili loans occur. Both forms subsumed under B are borrowed from Swahili *kiwanja* 'open field, playing field'. Form F, restricted to only three locations in Kitui-Kamba, is borrowed from Swahili *shamba* 'field, plot for cultivation'. The two forms subsumed under C are treated as identical (*P_1) and are possibly related to the verb *-ɦara* 'scratch, scrape, remove' (Benson 1964: 141). Both forms subsumed under D also occur under the keywords *209 garden* and *440 land*; they are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba).

266 to cultivate (-lima)

1a.	-rɪma	A	1-44c, 98-103, 105
1b.	-ɪma	A	45-97
2.	-tʊɦʊta	B	104

The two forms subsumed under A are related to CB *-dìm- C.S. 568 and treated as identical (*R_1/_/ɪ/ > /Ø/ in Kamba).

267 to dig a hole (-chimba)

1a.	-ɪnja	A_1	1-44c, 101, 102
1b.	-ɪnza	A_1	48-57, 60, 61, 63, 64, 66, 67, 75, 87, 89, 91, 94
2.	-ɛnza	A_2	45-47, 58, 73, 77-79, 84
3a.	-simba	B_1	62, 65, 68-72, 74, 77, 78, 80-86, 88, 90, 92, 93, 95-97
3b.	-cimba	B_1	98, 100

4.	-ʃĩmba	B_2	76, 86
5.	-rɪma	C	99, 103
6.	-liβula	D	59

The forms subsumed under B are connected to CB *-cìmb- C.S. 338. They are, however, borrowed from Swahili, as CB *c is normally reflected as /ð/ in CKB. The two forms subsumed under B_1 are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia, Gichugu, and Kamba). Moreover, the two forms subsumed under A_1 are treated as identical (*NJ). Form C is also attested with the meaning *266 to cultivate*. Form D is a loanword of unknown origin. For West-Rift Southern Cushitic, the form **fool* is listed by Kießling and Mous (2003: 339). It is, however, unclear whether this is the source word of form D.

268 hoe (jembe)

1.	gɪ.cɛmbɛ, ɪ.cɛmbɛ	A_1	1-34, 40-44, 99
2a.	ɪ.cɛmbɛ	A_2	31-33, 35-39
2b.	i.cɛmbɛ	A_2	98, 100, 101, 103
2c.	i.sɛmbɛ	A_2	102, 104, 105
3.	ɪ.(y)ɛmbɛ	A_3	45-47, 50-53, 55, 56, 57, 59, 60, 61, 64, 66, 69, 70, 72-75, 80-82, 84-93
4.	y(ɪ).ɛmbɛ	A_4	48, 54, 63, 65, 68, 83, 95-97
5.	y.ɛɛmbɛ	A_5	90, 94
6.	y.ɪmbɛ	A_6	58
7.	ɪ.simbi	A_7	62, 67, 71, 76-79

The hoe, made of metal, is a relatively recent innovation in Central Kenya, probably introduced through trade. In former times, the main tool for cultivation was a wooden digging stick. The relatively high diversity of the forms above indicate parallel borrowing. The forms A_1, A_2, and A_7 are probably borrowed from Swahili *jembe* (< CB *-jèmbè C.S. 933). The three forms subsumed under A_2 are treated as identical (cf. *C_1/_/a, ɛ, ɪ, ɔ, u/; class 5 /ɪ-/ in Embu and Mbeere regularly corresponds to class 5 /i-/ in Gikuyu, Ndia, and Gichugu.)

270 to plant (-panda)

1.	-PANDA	A	1-30, 33b, 34c, 40-97, 98-103, 105
2.	-a:ra	B	31-39

Form A is related to CB *-pànd- C.S. 1432 and reflected in CKB as follows (*P_1): *-ɦanda* (Meru, Chuka, Tharaka), *-vanda* (33b und 34c Embu), and *-βanda* (Kamba, Ndia, Gichugu).

272 to harvest (-vuna)

1.	-kɛða	A_1	1-44c, 45-60, 62-96, 100, 101, 103
2.	-gɛða	A_2	98, 99, 102, 104, 105
3.	-tusya	B	61, 97

The two forms subsumed under A are related to CB *-kèc- p.s. 287. Form B is also attested under the keyword *273 to pluck fruit*.

273 to pluck fruit (-chuma matunda)

1.	-tua ma.tunda	A_1	1-44c, 46, 48, 53, 54, 72, 80, 82,100, 101, 104, 105
2.	-t^{y}wa	A_2	62, 63, 65, 71, 75, 76, 83, 85-87, 90, 91, 93
3.	-tusya	A_3	65
4.	-ðʊrania	B	1-6
6.	-ʊmbanɪa	D_1	47, 49, 51, 52, 55-57, 60, 61, 64, 67
7.	-ʊmbanɪ̱a	D_2	66, 68
8.	-ʊmbanɪa, -ʊmbanɪ̱a	D_3	69, 70, 73, 77-79, 81, 84, 88, 89, 92, 94

9.	-bakʊa	E	96
11.	-kɛða	G	74, 97
12.	-kɔlanɪa	H	50, 59
13a.	-cɔkanɪrɪria	I	98, 99, 103
13b.	-sɔkanɪrɪria	I	102

Both forms A_3 and G also appear under the keyword *272 to harvest*. The forms A_1, E and I literally mean *274 to pick up*. Both forms subsumed under I, limited to the western dialects, are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a); they are, possibly, Maasai loans going back to *a-shúk* 'to return'. Form B goes back to the Maasai word *a-soló* (Möhlig 1974a: 148). Form H, as the occurrence of /l/ suggests, is a loanword, restricted to two locations in Masaku-Kamba

274 to pick up (-okota)

1a.	-ɔja	A_1	1-44c
1b.	-ɔsa	A_1	45, 46, 51, 60, 61, 74, 80, 83, 91, 95, 96
1c.	-ɔya	A_1	101, 103
2.	-ɔsania/ -nia	A_2	59, 64, 67, 72, 75-79, 81-84, 86, 90
3.	-ɔsania	A_3	62, 66, 68, 71
4.	-kɔlania/ -nia	B	47-50, 52-58, 63-65, 67, 69, 70, 92, 93, 97
5.	-βakʊa	C_1	85, 94
6.	-βakʊania/ -nia	C_2	73, 87, 89
7.	-tua	D	50, 102
8.	-rɔgɔta	E	100
9.	-gɔrɔta	F	98, 104
10.	-cɔkanɪrɪria	G	99
11.	-kɔlɔkɔta	H	60
12.	-rɪa	I	105

All forms subsumed under A_1 are treated as identical (* J_1 > /s/ in Kamba and /y/ in Gikuyu). Some Kamba locations show morphologically divergent forms. As the occurence of /l/ suggest, form B might be a loan. The restricted distribution of the forms subsumed under C also indicates borrowing. The forms D and G also appear under the keyword *273 to pluck fruit*. Form H, only attested for one location in Kamba, is possibly borrowed from the Gikuyu form F.

275 load (mzigo)

1a.	mʊ.rigɔ	A	1-44c, 98, 100, 101, 103, 104
1b.	mʊ.iɔ	A	45-90, 92-97
2.	i.gɪrɪra	B	105

The two forms subsumed under A are related to CB *-dígò C.S. 614 and treated as identical (*R_1/_/i/ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). Form B is derived from the relevant word form under the keyword *099 to lay down*.

276 stock (of grain) (akiba la nafaka)

1.	ma.kɛða	A_1	1-16, 26, 40-44, 100
2.	ngɛða	A_2	45-48, 50-55, 57-60, 62, 64, 70-75, 77-80, 83-86, 88, 92, 95
3.	ma.gɛða	A_3	98
4.	mʊ.ði:ðʊ	B	31-39, 105
5.	Circumscriptions	C	17-25, 27-30

6.	kɪ.inga	D	67, 68, 69, 81, 87, 91, 94
7.	ɪ.ɪu	E	49, 61
8.	mbɛu	F	63, 66
9.	kwɪia	G	97
10.	kiya	H	89
11.	ɪsinɔ	I	65
12.	kɪ.sakwa	J	93
13.	ɪ.kɛlɔ	K	96
14.	mʊ.rigɔ	L	101
15.	gɪ.gɪkɔːnja	M	103
16.	ɦakiba	N	104

The high diversity among the items above is partially due to different concepts. The forms subsumed under A are derived from the meaning *272 to harvest*. Form D also appears under the keyword *277 barn*. Form L is also attested under the keyword *275 load*. Besides, in Mwimbi, Muthambi, and Chuka, circumscriptions are used in order to translate this item.

277 barn (ghala ya nafaka)

1.	ncuku	A	1-9, 11, 12
2.	ɪ.kʊmbɛ	B_1	10, 13-44
3.	ɪ.kʊmbɪ	B_2	45-65, 67, 86, 91, 92, 70, 71, 101, 102, 105
4.	kɪ.anda	C	24, 40-44
5.	kɪ.inga	D	87, 90
6.	kɪ.sʊmba	E_1	68, 69, 88, 89, 93, 96
7.	kɪ.sɔmba	E_2	72-74, 76-85
8.	ky.ɔndɔ	F	97
9.	ʊ.taa	G	66, 95
10.	ndakʊlwa	H	94
11.	ðitɔ	I	98, 100
12.	sina	J	104
13.	sibɛa	K	75

Again, the high diversity among the above items can best be explained by the usage of different concepts. Form D also appears under the keyword *276 stock (of grain)*. The forms subsumed under E also occur under the keyword *205 room*. Form F is also attested under the keyword *246 basket*. Form H is an isolated loanword in Kamba of unknown origin, as the occurrence of /l/ indicates.

278 cattle (ng'ombe)

1.	ŋɔmbɛ	A	1-46, 49-52, 54-60, 62-68, 70, 72-81, 84-105
2.	indɔ	B	47, 48, 53, 61, 69, 71, 82, 83

Form A relates to CB *-ŋɔmbɛ C.S. 1402.

279 to keep cattle (-fuga)

1.	-tuga	A	1-44c
2.	-riːðia	B_1	98, 102, 105
3.	-rɪðia	B_2	103, 104

4.	-rɪːðia	B_3	99, 101
5.	-ɪðɪa	B_4	45-48, 51-54, 56, 57, 59-68, 70, 71, 74-78, 80, 81, 83, 87, 89, 94, 95, 97
6.	-ɪðya	B_5	69, 73, 79, 82, 84, 86, 90, 91
7.	-ɛa	C_1	50, 55, 58, 88
8.	-ɛya	C_2	81
9.	-ɛɛya	C_3	92
10.	-ɔβa	D	49, 72, 85, 93, 96
11.	-kʊria	E	100

All forms subsumed under B are related to CB *-dèd- 'to herd' C.S. 310 and also appear under the relevant keyword (cf. *280 to herd*). The forms subsumed under C are possibly connected to *-dèd- 'to herd' C.S. 310 or to CB *-dég- 'avoid' C.S. 521; the latter also occurs as *-rɛga* under the keyword *148 to refuse* in the languages close to Mt. Kenya. Possibly, this verb denotes the concept of keeping cattle from escaping.

280 to herd (-lisha)

1.	-rɪːðia	A_1	1-44c, 98-101, 103, 104
2.	-riːðia	A_2	102, 105
3.	-ɪðɪa	A_3	45-47, 49-53, 55-60, 67, 68, 70-72, 74-76, 78, 80, 83-85, 95, 96
4.	-ɪðya	A_4	48, 61, 63-67, 69, 72, 73, 81, 82, 86, 87-93, 97
5.	-suβa	B	54, 62
6.	kwˌɪia	C	77, 79
7.	-sʊnga	D	86, 94

All forms subsumed under A are related to CB *-dí- C.S. 550. They also occur under the keyword *279 to keep cattle*.

281 bull (ng'ombe dume)

1.	ndɛːgwa	A_1	1-44c, 99, 101-105
2.	ndɛᵍwa	A_2	48, 52, 58, 60, 64, 70, 82, 90, 93
3.	ndʊmɛ	B	98, 100
4.	nzaʊ	C	45-47, 49-51, 53-57, 59, 61-63, 65-69, 71-81, 83-89, 91, 92, 94-97

Form B is related to CB *-dúmè 'male' C.S. 697. Form C is widespread in Kamba, whereas form A_2 shows relatively restricted distribution in Kamba, possibly indicating a borrowing relationship with the languages in the vicinity of Mt. Kenya.

282 cow (ng'ombe jike)

1a.	mɔri	A	98, 105
1b.	mɔi	A	45, 49, 51, 58, 61, 75, 95, 97
2.	ŋɔmbɛ	B_1	64, 70, 96, 99-104
3.	ŋɔmbɛ (ya) NKA	B_2	1-48, 50, 52-60, 62-63, 65-73, 76-82, 84-87, 89, 91, 93, 94, 96
4.	mʊma	C	74, 83, 88, 90, 92

Both forms subsumed under A are treated as identical (*R_1/_/i/ > /Ø/ in Kamba). Form B_1 is the generic term for 'cow', while B_2 specifies a female (cf. CB *-ká 'wife' C.S. 970). The following forms are subsumed under B_2: *ŋɔmbɛ ya nka* (Chuka, Mwimbi, Muthambi, Igoji, Miutini, Nkubu, Tharaka), *ŋɔmbɛ ya nga* (Embu, Mbeere), and *ŋɔmbɛ nga* (Kamba). They are treated as identical in accordance with series *NK. Form C, as the limited distribution in Kamba suggests, is possibly a loanword.

283 to milk (-kamua)

1.	-kama	A	1-105
2.	-ðuma	B	73, 78, 79

Form A is related to CB *-kám- C.S. 994. The origin of form B is unclear.

284 to churn (-sukasuka maziwa)

1.	-ðʊka ɪ.riːa	A_1	1-14, 16a, 21
2.	-ðuka ɪ.riːa	A_2	19a, 22, 26, 27, 32, 35-44, 45-59, 61-90, 92-97
3.	-ðukaðuka ɪ.riːa	A_3	98
4.	-ðusa ɪ.riːa	A_4	102
5.	-cuka ɪ.riːa	A_5	103
6.	-ringa ɪ.riːa	B	15-30
7a.	-bʊːra ɪ.riːa	C	31, 33, 34, 43b
7b.	-ɦʊːra ɪ.riːa	C	100

All forms subsumed under A are related to each other and possibly influenced by the relevant Swahili word. The forms B and C are circumscriptions of the activity of churning: The verbs *-ringa* and *-βʊːra* / *-ɦʊːra* are also attested under the keywords *163 to beat* and *164 to hit*. These are often used in circumscriptions of different activities, e.g. *417 to iron*. Both forms subsumed under C are treated as identical (*P_1).

285 donkey (punda)

1a.	ntigiri	A	1-26, 40-44
1b.	ndigiri	A	101
2.	mpunda	B_1	15, 19a, 21, 23, 24
3.	mbunda	B_2	27-39, 104
4.	bunda	B_3	98-100, 103, 105
5.	mʊ.unda	B_4	102
6.	ɪ.ŋɔi	C	45-97

Form A goes back to the Maasai word *o-síkìrìà* (Tucker & Mpaayei 1955: 289). They are treated as identical (*NT). All forms subsumed under B evidently go back to Swahili.

286 goat (mbuzi)

1a.	mbʊri	A_1	1-16a, 17-30, 98-105
1b.	mbʊi	A_1	45-97
2.	mburi	A_2	31-44, 16b

All forms are related to CB *-búdị̀ C.S. 185. The two forms subsumed under A_1 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

287 sheep (kondo)

1.	ŋɔɔndu	A_1	1-15, 98, 99, 101, 102, 105
2.	ŋɔndu	A_2	16-44, 100
3.	ɪ.lɔndu	A_3	45-63, 66, 69-71, 77-79, 82, 84, 92
5.	ɪ.lʊnga	B	65, 67, 68, 72-76, 81, 83, 85-91, 93-97
7.	mbʊri	C_1	103
8.	ma.mbʊri	C_2	104

The two forms A_1 and A_2 are borrowed from Southern Cushitic **gɔndu* (Philippson 2013: 91) The occurrence of /l/ suggest that the forms A_3 and B are also borrowed. The two forms subsumed under C also occur under the keyword *286 goat*.

288 pig (nguruwe)

1.	ngʊrʊɛ	A_1	1-44c, 98-105
2.	ngʊlʊ(w)ɛ	A_2	45-53, 55-62, 64, 65, 67, 87, 88, 90, 96
3.	ngʊ(w)ɛ	A_3	54, 70, 74-76, 80, 81, 89, 97
4.	ngʊʊwɛ	A_4	63, 65, 66, 68, 69, 71, 72, 73, 82, 83, 89, 91-95
5.	ngʊɛɛ	A_5	77-79, 84, 85

All of the forms above are connected to CB *-gùdùbè C.S. 888. However, form A_2 is clearly a loanword in Kamba, as it is not regularly derived from CB. The languages on the slopes of Mt. Kenya as well as Swahili are possible donors of this item.

289 chicken (kuku)

1.	ngʊkʊ	A_1	1-97, 99-105
2.	kʊkʊ	A_2	98

Both forms are related to CB *-kúkú C.S. 1203. A_2, however, might be a Swahili loan.

290 cock (jogoo)

1.	NCAMBA	A_1	1-44c
2.	nzamba	A_2	47-53, 56, 57, 59-89, 91-95, 97, 98
3.	njamba	A_3	46, 58, 99, 105
4.	gɪ.samba	A_4	104
5.	nzɔkɔlɔ	B_1	55, 90, 96
6.	nzɔkɔlu	B_2	54
7.	njɔgɔ	C_1	98, 100-103
8.	gɪ.cɔgɔ	C_2	98

The relatively high diversity suggests borrowing. All forms subsumed under A are irregularly connected to each other. The direction of borrowing is, however, unclear. Both forms subsumed under B are also loans, whose origin is unknown. The prevailing form in Kamba, A_2, is attested in the relevant school literature (Mwende 2006: 14). Both forms subsumed under C are restricted to the western dialects. They are borrowed from Swahili.

291 cat (paka)

1.	MPAKA	A_1	1-16, 20-25, 27, 28, 32a, 32b, 40-62, 64-69, 71,73-75, 77-85, 87-90, 93-97, 100
2.	ka.βaka	A_2	63, 70, 92
3.	k.aka	A_3	72, 86, 91
2.	guci	B_1	3, 4
3.	mbu:ci	B_2	17-21
4.	ka.bu:ci	B_3	24, 25, 26, 27, 33, 34
5.	ka.ɲau	C_1	30, 31a, 33, 34
6.	ka.ɲaʊ	C_2	32, 35-39, 103
7.	ɲau	C_3	98, 99, 101, 104, 105
8.	ɲaʊ	C_4	102

Keeping cats as domestic animals has only relatively recently been introduced to Central Kenya (Möhlig 1974a: 151). According to Möhlig (ibid.), form A_1 is borrowed from Swahili. In accordance with the correspondence series *MP, the following forms are subsumed: *-mpaka* (Imenti, Miutini, Igoji, 20 und 21 Mwimbi, Muthambi, Tharaka) and *-mbaka* (27 und 28 Chuka, 32a und 32b Embu, Kamba, 100 Nyeri). The relevant item constructed by Guthrie is *-páká C.S. 1420. The forms subsumed under C are quite obviously onomatopoetica.

292 dog (mbwa)

1.	karu	A_1	1-25
2.	kuru	A_2	26-30, 40-44
3.	NKUI	B_1	18, 21, 22, 24, 31-39, 98, 100-103, 105
4.	ngurui	B_2	99
5.	ngitɪ	C	22, 27, 32a, 34a, 35, 36, 38b, 45-97, 104

The two forms subsumed under A are possibly borrowed (cf. Möhlig 1974a: 151). In accordance with the correspondence series *NK_1 , the following words are subsumed under B_1: *-nkui* (18 und 21 Mwimbi, 22 und 24 Muthambi) and *-ngui* (Embu, Mbeere, Gikuyu, Gichugu).

293 to hunt (-winda)

1.	-ðɔ:ga	A	1-12
2.	-u:gi̯a	B	7-26
3.	-gwɪ:ma	C	27-44
4.	-ʃɪma	D_1	46, 48, 49, 56, 61-63, 66, 67-73, 75-94, 96, 97
5.	-sɪɪma	D_2	45, 47, 50-55, 57-60, 74, 95
6.	-sɪɛma	D_3	104
6.	-tɛga	E	98
7.	-fiɪta	F	99-103, 105

Form C is related to CB *-gʊ́ím- C.S. 904. Form E is also attested under the keyword *304 trap*.

294 hunter (mwindaji)

1.	mu.ðɔ:gi	A	1-6
2.	m.u:gia	B	7-26
3.	mu.gwɪ:mi	C	17, 21, 24-39, 102
4.	mu.a:ði	D	7-12, 16a, 18, 19a, 26, 40-44
5.	mu.ʃimi	E_1	46, 48, 49, 56, 61-63, 66-73, 75, 77-82, 84-95, 96, 97
6.	mu.sɪɪmi	E_2	45, 47, 50-55, 57-60, 76, 83
7.	mu.sɪɛmi	E_3	95
8.	fiɪti	F_1	103
9.	mu.fiɪti	F_2	99-101, 105
10.	mu.tɛgi	G	98

All of Central Kenyan Bantu uses nominalized forms of the verb *293 to hunt*. Form C is related to CB *-gʊ́ím- 'to hunt' C.S. 904. Form G also occurs under the keyword *304 trap*.

295 bow (upinde, uta)

1.	u.ta	A	1-97, 99, 101-105
2.	mu.kaakai	B	94
3.	ngɔ	C	98

Form A is related to CB *-tá C.S. 1631. Form C also occurs under the keyword *302 shield*.

296 arrow (mshale)

1.	mʊ.gU̱ɪ	A_1	1-12, 26, 30, 40-44
2.	mʊ.gʊɪ	A_2	13-25, 103, 104
3.	mʊ.gui	A_3	27-29, 31-33, 35-39
4.	mʊ.guiɪ	A_4	34a, 34b
5.	mʊ.gʊɪ	A_5	98, 99, 102, 105
6.	mʊ.carɪ	B	100
7.	ɪ.angi	C_1	45, 47-49, 51-53, 55, 57-62, 64, 66, 67, 69, 72, 73, 77, 85-88, 91, 92
8.	y.angi	C_2	46, 50, 54, 56, 63, 65, 68, 70, 74, 89, 90, 93-97
9.	mʊ.ʃɪ	D	75, 76
10.	ky.anɔ	E	80, 90

All forms subsumed under A are possibly related to CB *-gúím- 'to hunt' C.S. 904.

298 to shoot at (-piga bunduki)

1a.	-raða	A	1-44c, 98-105
1b.	-aða	A	45-71, 73-79, 81-85, 86-89, 91, 92, 94-97
2.	-ɪtʃa ɪvuti	B	80, 90, 93
3.	-kʊna ɪvuti	C	72, 86

Both forms subsumed under A are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba); they srelate to CB *-dác- C.S. 449. The two forms B and C seem to be borrowed by a few locations in Kamba. Their origin is unclear.

299 spear (mkuki)

1.	ɪ.tumʊ	A_1	1, 2, 16b, 22-44, 46, 47, 58
2.	ɪ.tumɔ	A_2	3-21, 26, 40-45, 48-57, 59-82, 84-97
3.	i.timʊ	A_3	98-104
4.	mʊ.gʊɪ	B	105

All forms subsumed under A go back to CB *-túmó C.S. 1867 or *-túmù C.S. 1868. Form B is also attested under the keyword *296 arrow*.

300 to pierce (-choma)

1.	-MUNTA	A	1-44c
2a.	-raða	B	99, 103
2b.	-aða	B	49, 51, 52, 54, 68, 69, 75, 90, 95
3a.	-cina	C_1	98
3b.	-sina	C_1	104
4.	-tina 'touch'	C_2	73, 82, 84
5a.	-ðɛca	D	100, 101
5b.	-ðɛsa	D	102, 105
6.	-tɔŋa	E	45-48, 50, 53, 55-61, 63-67, 70, 72, 77-89, 92-94, 96
7.	-βɪβya 'roast'	F	74,76, 85, 89, 91, 97
8.	-ðɔɔma	G	62, 70, 71

The following forms subsumed under A are attested for this item: *-munta* (Chuka, Meru, Tharaka) and *-munda* (Embu, Mbeere). The two forms subsumed under B, also attested under the keyword *298 to shoot*, are treated as

identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba); the same holds for the two forms subsumed under C_1 (*C_1/_/i, u/ > /s/ in Ndia) and D (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a and Gichugu).

301 to kill (-ua)

1a.	-ʊraga	A_1	1-44c, 99, 101, 102, 104, 105
1b.	-ʊaa	A_1	45-47, 49-62, 65-68, 70-75, 77-79, 81, 82, 84, 86-93, 95, 97
2.	-waa	A_2	48, 63, 64, 69, 76, 80, 83, 85, 94, 96
3.	-raga	A_3	98, 100, 103

All forms are related to CB *-búd- C.S. 184. The two forms subsumed under are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba).

302 shield (ngao)

1.	rəŋɔ	A	1-16, 40-44
2.	ngɔ	B_1	17-39, 98-105
3.	ngaɔ	B_2	45-97

Form A is a loan from Maasai *e-lɔ́ŋɔ́* (Tucker & Mpaayei 1955: 306). The two forms subsumed under B are related to CB *-gàbò C.S. 756.

304 trap (mtego)

1a.	mʊ.tɛgɔ	A_1	1-44c, 89-105
1b.	mʊtɛɔ	A_1	45-47, 51-53, 56, 59-61, 67, 96
2.	ʊ.tɛa	A_2	64, 74, 88
3.	ʊ.tɛɔ	A_3	93, 95
4.	kɪ.tɛi	A_4	75
5.	mʊ.kwa	B_1	49, 50, 61, 63, 65, 80-85
6.	mw.ɔkwa	B_2	77-79
7.	kɪ.lɔɔ	C	48, 62, 71
8.	kɪ.tɛŋʊ	D_1	54, 55, 66, 68, 70, 73, 87, 89-92, 94
9.	kɪ.tɛŋɔ	D_2	57, 69, 72, 76, 86

All forms subsumed under A are related to CB *-tégò C.S. 1699. Both forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). Both forms subsumed under B are possibly related to the keyword *308 to fish*. Form C is also attested under the keyword *309 fishhook* and obviously a loanword in Kamba.

308 to fish (-vua samaki)

1.	gwaːtia	A_1	1-6
2.	kwatia	A_2	45, 49-55, 59, 96
3a.	-tɛga	B	7-44, 98-105
3b.	-tɛa	B	46-48, 56-58, 60-82, 84-95, 97

Cognates of the two forms subsumed under A are also attested under the keywords *098 to seize* and *557 to touch*. Both forms subsumed under B are related to CB *-teg- C.S. 1698 and treated as identical (*G/_/a, ɛ, ɪ , ɔ, ʊ/ > /Ø/ in Kamba).

309 fishhook (ndoana)

1.	rʊ.anɔ	A_1	1-6, 13-15, 24
2.	ndU̱aːnɔ	A_2	7-12, 15, 16-25, 31-39
3.	nðU̱aːnɔ	A_3	26-30

4.	ndʊanɔ	A_4	40-44, 100, 101
5.	ndɔana	A_5	45, 47, 51-56, 72, 83, 87, 90-93, 95-97
6.	ndʊana	A_6	58, 59
7.	ndɔanɔ	A_7	57, 60-63, 69, 70, 73-79, 81, 82, 84, 86, 88, 89, 98, 99, 102, 103, 105
8.	ndwanɔ	A_8	48, 50
9.	kɪ.tɛi	B	49, 64-67, 71, 85
10.	kɪ.lɔɔ	C	80

Fishing is a rather uncommon activity in Central Kenya. The high diversity of the items above is, consequently, due to little usage of this concept. All forms subsumed under A are related to CB *-dób- C.S. 638. The two forms B and C also appear under the keyword *304 trap*. The latter is clearly a loan.

310 animal (mnyama)

1.	ɲɔmɔ	A_1	1-6, 8, 9, 11
2.	ɲamʊ	A_2	7-97, 100
3.	ɲamɔ	A_3	98, 101-103, 105
4.	ɦiti	B	99

All forms subsumed under A are connected to CB *-yàmà C.S. 1910. Form A_1 is used in vernacular teaching (TLY Kimeru: 35). It has spread from Northern Imenti into a few locations on the eastern slopes of Mt. Kenya. The isolated Form B, only appearing in Nyeri, also occurs under the keyword *319 hyena*.

311 to bite (-uma)

1a.	-rʊma	A	1-44c, 98-105
1b.	-ʊma	A	45-97

Both forms are related to CB *-dúm- C.S. 696 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

312 fur (manyoya ya wanyama)

1.	guɛ	A	1-25
2.	gwɔya	B_1	26-39
3.	gwa:ya	B_2	40-44
4	gʊ.ɔya	B_3	98, 99, 102, 105
5.	ma.gʊɔya	B_4	100, 101
6.	^{g}wɪa	C	45-97
7.	ɦaraiɦu	D	103

313 horn (pembe)

1.	Rʊ.GɔJI	A	1-26, 40-44
2.	Rʊ.PɪA	B_1	27-39, 100-102, 104, 105
3.	ɦɪa	B_2	98
4.	gʊ.ɦɪa	B_3	99
5.	ʊ.bɪa /mbɪa	B_4	45-47, 49-51, 53-55, 57-59, 76, 80, 83, 93, 96, 97
6.	ʊ.bi̯a / mbi̯a	B_5	48, 61, 64, 65, 67, 69, 70, 72-75, 77-79, 81, 82, 84-92, 95
7.	ʊ.bya / mbya	B_6	56, 62, 63, 66, 68, 71
8.	ʊ.kaatɪ	C	52, 60, 94

In accordance with the dia-series *P_1, the following forms are subsumed under B_1: *rU.ɦɪa* (Chuka, Nyeri, Kiambu, Murang'a), *rU.βɪa* (Ndia, Gichugu), and *rU.vɪa* (Embu, Mbeere).

314 tail (mkia)

1.	mU.ɲiːriða	A_1	1-6, 9, 11
2.	mU.ðɪrɪŋa, kɪ.ðɪrɪŋa	A_2	7, 8, 10, 12, 15
3.	mU.cinɔ	B	13-25, 27
4.	mU.tirɔ	C	26-28, 40-44
5.	mU.cuðɪ, mU.ciðɪ	D	27, 29, 30, 36-39
6.	mU.kiːa	E	31, 32, 35, 39c
7.	mU.ðiːta	F_1	31-34
8.	mU.ði(i)ta	F_2	95, 97
9.	kɪ.ði(i)ta	F_3	94
10.	kɪ.siðɛ	G_1	45, 46, 48-50, 52, 53, 58-63, 66, 68, 71, 76-79
11.	kɪ.siðɪ	G_2	64, 65, 67
12.	mw.iðɛ	G_3	47, 51, 54, 69, 72-74, 81-85, 87-93, 96
13.	mU.siðɛ	G_4	55
14.	mU.βiðɛ	G_5	86
15.	ɪ.siðɛ	G_6	56
16.	mw.inga	H_1	70, 80
17.	kɪ.inga	H_2	75
18.	mU.tiŋwɛ	I_1	98-101, 103-105
19.	mU.tUŋwɛ	I_2	102

The high diversity of the items above is due to the fact that this keyword is also used to describe the concepts of 'penis' and is, therefore, to be considered a taboo word (Möhlig 1974a: 153).

315 buffalo (nyati)

1a.	mbɔgɔ	A	1-44c, 98-105
1b.	mbɔɔ	A	45-97

Both forms are related to CB *-bògó C.S. 157 and treated as identical (*G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba).

316 elephant (tembo, ndovu)

1a.	njɔgu	A	1-44c, 98-105
1b.	nzɔu	A	45-97

Both forms are related to CB *-jògʊ̀ C.S. 951 and treated as identical (*NJ > /nz/ and *G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba).

317 giraffe (twiga)

1.	rɪŋwa	A	1-21
2.	NTWɪːGA	B_1	17, 20, 22-39
3.	ntUɪːga	B_2	40-44
4.	ndUːiga	B_3	101, 103, 105
5.	ndwɪa	B_4	45-97
6.	twiga	B_5	100, 104

7.	njiraʉ	C	98, 102

All forms subsumed under B are connected to CB *-tùìgà p.s. 469. Form C is an English loanword. The relatively high diversity of the forms subsumed under B is possibly due to little usage of this concept. In the vicinity of Mt. Kenya, giraffes are uncommon. According to Möhlig (1974a: 154), form A is a Maasai loan. The forms subsumed under B are influenced by the relevant Swahili word.

319 hyena (fisi)

1.	mbiti-ŋau	A_1	1-21
2a.	mbiti	A_2	22-97, 104
2b.	ɦiti	A_2	98-103, 105

All forms are related to CB *-pɨ́tɨ́ C.S. 1562. The two forms subsumed under A_2 are treated as identical (*MB_2). Form A_2 also occurs under the keyword *310 animal*.

320 leopard (chui)

1.	nkari	A_1	1-6, 11, 13-26
2.	ngarɪ	A_2	99-105
3.	narɔcɔ	B	7-12, 24
4.	ndʊ	C	27-30, 35
5.	gɪ.taŋa	D	31-39
6.	ngɔ	E	40-44, 52-57, 60, 62-97
7.	mʊ.rʊði	F	98
8.	kɪ.kɔyɔ	G	45-51, 58, 59, 61

Only Tharaka and a few locations in Kamba use form E that is related to CB *-gò C.S. 834. In Kamba, form G prevails, which is also used in Kamba school books (Watuma 2008: 22; Mwende 2006: 23). Form F also occurs under the keyword *321 lion*.

321 lion (simba)

1.	ngatuŋi	A	1-15, 17-26, 42a
2a.	cimba	B	16, 17, 20, 21, 24, 27-39, 40, 42b, 98
2b.	simba	B	102, 104, 105
3.	mʊ.ŋambʊ	C_1	37, 39, 41, 42c-46, 48-56, 59, 61-72, 75, 76, 80, 81, 83, 85, 87-89, 91-96
4.	mʊ.ŋambɔ	C_2	47, 57, 58, 60, 73, 77-79, 82, 84, 86, 90, 97
5.	mʊ.rʊði	D	100, 101, 103

The two forms subsumed under B are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a, Ndia and Gichugu). They do not, however, go back to CB *-cɨ́mbà C.S. 357, since in this case **ðimba* would be expected in Central Kenya Bantu. Consequently, borrowing from Swahili is more likely. According to Möhlig (1974a: 154), the high diversity of the items above is probably due to avoidance of this concept. Form A is used in vernacular teaching (TLY Kimeru: 25). The same holds for form C_1, which prevails in Kamba due to school education (e.g. Mwende 2006: 23).

322 fruit-bat (popo)

1.	kɪ.rɛ:rɛ	A_1	1-26
2.	ka.rɛrɛ, rʊ.rɛrɛ	A_2	22, 25, 40-44
3.	rʊ.bu:bu	B_1	27-30
4.	kɪ.bu:bu	B_2	31-39
5a.	rʊ.ɦuɦu	B_3	98, 101, 104, 105

5b.	ʊ.βuβu	B_3	45-61, 64-67
6.	ɦuɦu	B_4	102, 103
7.	ka.ʊ.βuβu	B_5	63, 67, 71
8.	ka.βuβu	B_6	62, 69, 70, 72-89, 91-93, 95-97
9.	mbuβu	B_7	68, 90, 94

In accordance with the dia-series *P_1, the two forms subsumed under B_3 are treated as identical (moreover, class 11 /rʊ-/ in Gikuyu corresponds to class 11 /ʊ-/ in Kamba). The relatively high diversity is probably due to infrequent use of this concept.

325 rat (panya)

1.	mbɪa	A	1-26, 35-98, 100-105
2.	ɪ.kɪndʊ	B	9, 14, 19a, 22, 24, 25, 27-34

Form A is related to CB *-bibà p.s. 23. Form B is only widespread in Chuka and Embu. A few additional scattered locations on the eastern slopes of Mt. Kenya also show this form. Form A is used in Meru school literature (Laughton 1999: 7).

326 fish (samaki)

1.	gɪ.kʊyʊ , ɪ.kʊyʊ	A_1	1-16a, 23, 26, 40-97
2.	gɪ.kʊʊ	A_2	17-21, 27-30, 36a
3.	camaki	B_1	13-25
4.	nðamaki, ðamaki	B_2	31-39, 98-105
5.	kɪ.ʊngʊyʊ	C	35, 37
6.	ɪ.kungara	D	40-44

Both forms subsumed under B are Swahili loans that made their way into Central Kenyan Bantu by parallel borrowing. The forms subsumed under A are possibly related to form C.

328 crocodile (mamba)

1.	kɪ.ŋa:ŋi	A_1	1-44c, 102, 104, 105
2.	kɪ.ŋaŋi	A_2	45-98, 100, 101, 103

Both forms go back to Maasai *ol-kinyaŋ (*Tucker & Mpaayei 1955: 287).

329 python (chatu)

1.	NðATU	A	1-20, 40-44
2.	nta:ra:ra	B_1	15, 21-30
3a.	ɪ.ta:ra	B_2	31-39
3b.	ɪ.taa	B_2	45-97
4.	i.tarara, gɪ.tarara	B_3	101, 102, 104, 105
5.	ɲamɔ a ðɪ	C	98
6.	ɲɔka	D	99, 103
7.	paiðɔni	E	100

Both forms subsumed under B_2 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). Form C literally means the 'animal of the ground' (cf. *310 animal*, *440 land*). Form D is probably borrowed from Swahili *nyoka* meaning 'snake'. Form E is evidently an English loan.

330 snake (nyoka)

1a.	njɔka	A_1	1-44c
1b.	nzɔka	A_1	45-65, 67, 69-79, 81-85, 88, 89, 92, 95, 97
2.	ɲɔka	A_2	98-105
3.	ɲamu ya nðɪ	B	66, 68, 80, 86, 87, 90, 91, 93-96

All forms subsumed under A are related to CB *-jókà C.S. 952. A_2 is, however, irregular and probably borrowed from Swahili. The two forms subsumed under A_1 are treated as identical (*NJ). Form B literally means 'animal of the ground' (cf. *329 python*, *310 animal*, *440 land*). In Kamba, form A_1 prevails, probably due to its usage in school education (Mwende 2006: 41; Watuma 2008: 3).

331 lizard (mjusi)

1.	mu.urʊ:ru	A	1-6
2.	nðikaði	B_1	7-34
3.	mu.rikaði	B_2	35, 38
4.	njagaði	B_3	98-105
5.	gɪ.ci:ri	C	35, 36
6.	nkɔu	D	40-44
7.	mwilu	E	45, 48, 49, 51-53, 55, 58, 60
8.	ɪ.tɛlɛmbu	F_1	63, 66, 69, 90, 95, 96
9.	(k)ɪ.tɛlɛmbu	F_2	57, 59, 65, 67
10.	ɪ.tɛɛmbu	F_3	50, 54
11.	ɪ.kanza	G	62, 68, 70-89, 92, 91, 93
12.	kɪ.ɲɔi 'barber'	H	97
13.	ɪ.ŋala	I	46, 47, 61, 64
14.	ndilya	J	56
15.	ɪ.tilɪngu	K	94

The high diversity of the items above is probably due to little usage of this concept (cf. Möhlig 1974a: 156). In Kamba, a number of locations show obvious loanwords. These are the forms E, F_1 and F_2, as well as the forms I, J, and K. Their origin, however, remains unclear.

332 snail (koa)

1.	gɪ.kɔɲɔ	A_1	1-26
2.	ɪ.kɔɲɔ	A_2	40-44, 73, 75, 77, 82-84
3.	ɪ.rumbɔ	B_1	26-39
4.	kɪ.rumbwa	B_2	104
5.	ɪ.(y)usia	C_1	45, 50-52, 55, 58, 59
6.	ɪ.unzia	C_2	57
7.	ɪ.usya	C_3	61, 62, 72, 86
8.	yɪ.us^{y}wa	C_4	65
9.	ɪ.us^{y}wa	C_5	66, 76
10.	y.uus^{y}wa	C_6	68, 91-94, 96
11.	ɲɪ.usya	C_7	46
12.	yɪ.usya	C_8	49, 54, 63, 64
13.	(y)ɪ.us^{y}wa	C_9	69, 95

14.	y.uusya	C_{10}	89
15.	ɪ.us^{y}wi	C_{11}	71
16.	ɪ.wusywa	C_{12}	70
17.	ɲɔnga	D_1	47, 56, 60, 67, 88, 90
18.	ɲʊnga	D_2	87
19.	ɪ.yɔnga	D_3	48
20.	ɲɔngɔɔ	D_4	85
21.	ɪ.ɲəlɔki	E	53
22.	ndinɔɦɔ	F	98, 100, 101, 103
23.	kɪ.ʊra	G	99

The high diversity of the items above is due to little usage of this concept (ibid.)

333 frog (chura)

1.	kɪ.ʊ:ra	A_1	1-44c, 98, 100-105
2.	ky.ɔa	A_2	45, 48, 49, 51-68, 71
3.	ky.ɔwa	A_3	69, 70, 72-97
5.	ky.ʊa	A_4	46, 47
6.	ky.ʊ	A_5	50

All forms are related to CB *-yùdá C.S. 2150. The differences between these forms are treated as phonological divergence, as /ky-/ is a palatalized variant of class 7 /kɪ-/.

335 bee (nyuki)

1a.	njʊkɪ	A	1-44c, 98-105
1b.	nzʊkɪ	A	45-97

Both forms are related to CB *-júkì C.S. 962 and treated as identical (*NJ).

336 soldier ant (chungu)

1.	nðiraku	A_1	1-8
2.	nðuraku	A_2	7, 9-44, 100
4.	nzuakʊ	A_3	62, 71, 77-79, 81, 84
5.	nʒuakʊ	A_5	93
6.	nðuakʊ	A_6	53, 55, 57
7.	nduraku	A_7	101
8.	nðingii	B_1	63, 66
9.	nzingii	B_2	70, 72, 74-76, 80, 83, 85-87, 90, 95, 96
10.	gɪ.ðɔa	C_1	98
11.	mʊ.ðʊa	C_2	103, 105
13.	mʊ.ngaiðɛ	D	68, 94
14.	nzulɛ	E	73, 82
15.	ngʊkʊ	F	45-49, 51, 52, 54, 59, 60, 64, 65, 67, 69, 92
16.	nzungu	G_1	64, 89, 97
17.	nðungu	G_2	88

18.	ðigiriri	H	99
19.	ndʊraita	I	102
20.	mʊ.gasa	J	104

The high diversity of the items above is due to little usage of this concept (ibid.).

337 termite (mchwa)

1.	mʊ.ðʊa, nðʊa	A_1	1-16a, 17-30, 45-47, 49-55, 57-60, 63-66, 78, 79, 81, 82, 84, 86, 99-105
2.	mʊ.ðɔa	A_2	16b, 31-44, 83, 97, 98
3.	mʊ.ðʊa̰	A_3	48, 56, 61, 67-70, 72-77, 80, 85, 87, 89, 90-96
4.	mʊ.ðʊwa	A_4	59
5.	nzwa	A_5	62, 71
6.	nðʊa̰	A_6	88

All forms are related to CB *-cúá C.S. 932. The high diversity of the items above is due to little usage of this concept.

338 house fly (nzi)

1.	ngi	A	1-105

All of Central Kenya Bantu uses the same form going back to CB *-gi̧ C.S. 819.

339 mosquito (mbu)

1.	rʊ.a:gɪ	A_1	1-44c
2.	rʊ.agɪ	A_2	98, 100, 102, 104, 105
3.	ʊ.muu	B_1	45-55, 57-61, 64, 65, 67, 68, 69, 87-97
4.	ka.muu	B_2	56, 62, 70, 82, 73, 85, 86
5.	ka.ʊ.muu	B_3	63, 66, 71, 72, 74-79, 82-84, 87
6.	k.ɔ.muu	B_4	80, 81
7.	mbumbu	C	101

The relevant item constructed by Guthrie is *-bú C.S. 172. The forms subsumed under B are restricted to Kamba. The high diversity may be due to little usage of this concept. B_1 is the prevailing form in Kamba. This might be due to vernacular teaching (cf. Mwende 2006: 38).

340 spider (buibui)

1.	mbʊ:bʊɪ	A_1	1-12
2.	mbʊ:bʊi	A_2	13-26, 40-44
3.	mbʊmbʊi	A_3	27-34, 98-100, 103
4.	mbʊmbʊɪ	A_4	35-39, 102, 104, 105
5.	kɪ.mbʊmbʊɪ	A_5	101
6.	mbʊambʊi	A_5	45, 50, 51, 56, 58, 61, 63-67, 69, 71
7.	mwambʊɪ	A_6	47, 52-55, 59, 60, 62, 77-79, 81
8.	mbambʊɪ	A_7	46, 68, 90, 96
9.	bʊaβʊɪ	A_8	48
10.	mbʊaβʊɪ	A_9	70, 80, 87, 91
11.	mbwamwɪ	A_{10}	75
12.	mbwaβʊɪ	A_{11}	72, 73, 76, 82-84, 88, 92, 95, 97

13.	mbaβʊɪ	A_{12}	74, 89
14.	mbwa(a)mbʊɪ	A_{13}	85, 86, 93, 94
15.	kɪ.ŋani	B	49, 57

All forms subsumed under A are related to CB *-bùbì C.S. 178. The high amount of diversity is probably due to low usage of this word. According to Möhlig (1974a: 157), the high diversity may also be due to parallel borrowing from Swahili.

341 louse (chawa)

1.	nda:	A_1	1-16
2.	ndaa	A_2	17-30, 35-44, 45-98, 101-105
3.	ndaga	A_3	31-34
4.	ndɪwa	B	99
5.	ðua	C	100

All forms subsumed under A are related to CB *-dá C.S. 446. The high amount of diversity is probably due to low usage of this word (ibid.).

342 bird (ndege)

1.	ɲɔni	A_1	1-12, 14, 26, 40-44, 50, 98-105
2.	kɪ.ɲɔni	A_2	13, 15-25
3.	ɲʊɲi	A_3	45, 47-49, 51-57, 59-61, 64, 65, 67, 71, 80, 81, 88-91, 93-96
4.	ɲɔɲi	A_4	58, 70, 75, 76, 78, 79, 97
5.	ɲɔɲɔ	A_5	77
6.	gɪ.cici	B	27-30
7.	gɪ.cɔni	C_1	31-39
8.	ka.sɔni	C_2	46, 62, 72, 86
9.	ka.sʊni	C_3	63, 66
10.	ɪ.sʊni	C_4	68, 69, 85, 87, 92
11.	ɪ.sɔni	C_5	74, 82-84
12.	ɪ.sɔɲi	C_6	73

All of the forms subsumed under A are connected to CB *-yúnɨ̀ C.S. 2170 or *-yònɨ̀ C.S. 2121. The stems of the forms C_1, C_2, and C_5 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Kamba). The differences between these forms are, therefore, considered as morphological divergence. Their restricted distribution might indicate borrowing, a donor is, however, not identified. In Kamba, the prevailing form is A_3. Its widespread use might be due to school education (TLY Kamba Course Book 1: 16; Mwende 2006: 57).

343 feather (unyoya)

1.	rʊ.bʊɪ	A_1	1-44
2.	ɪ.βʊɪa	A_2	47, 80, 90, 93, 96
3.	ɪ.βʊ̯ɪa	A_3	45, 48-56, 62, 63, 67, 68, 71, 76-79, 81
4.	ɪ.βʊ̯ɪya	A_4	46
5.	ma.βʊya	A_5	75, 83, 97
6.	ma.βʊ̯ɪ(y)a	A_6	74, 82, 84
8.	ɪ.βʊ̯ɪ(y)a	A_7	69, 70, 72, 73, 85-89, 91, 92, 94, 95
9.	ɪ.ʊa	B	58
10.	ɪ.sɪa	C_1	49, 57, 61, 64-66

11.	ɪ.sɛa	C_2	59, 60
12.	gʊ.ɔya	D_1	98
13.	rʊ.ɔya	D_2	100, 103
14.	ma.gɔya	D_3	101
15.	ma.butɔ	E_1	102
16.	ma.buta	E_2	105
17.	ɪ.buta	E_3	26, 30, 32-34
18.	i.ðagu	F	104

This concept is expressed by one and the same word form A_1 in all dialects on the southern and eastern slopes of Mt. Kenya. The other varieties, i.e. Gikuyu, Ndia, and Gichugu as well as Kamba, use a large amount of different forms. The reason for the high diversity of these items is mainly unclear. It may be partially due to the use of different concepts: The forms subsumed under D also occur under the keyword *312 fur*. The stem *-sɛa* of form C_2 is also attested under the keyword *344 wing*. The latter also holds for F.

344 wing (ubawa)

1a.	ɪ.ðagu	A_1	1-44c
1b.	i.ðagu	A_1	98, 100-104
2.	ʊ.ðwau	A_2	48, 53, 55-57, 59, 61, 64-67, 70, 71, 75, 77-79, 82, 84, 87, 89, 90, 93, 94
3.	kɪ.ðau	A_3	49
4.	ʊ.ðɔu	A_4	46, 50, 62, 80, 88, 96
5.	ʊ.ðau	A_5	45, 47, 51, 52, 54, 58, 63, 69, 72-74, 76, 81, 83, 85, 86, 91, 92, 95, 97
6.	kɪ.ðɔu	A_6	60
7.	ma.ðagu	A_7	105
8.	ʊ.sɛa	B	68

Both forms subsumed under A_1 are treated as identical, as class 5 /i-/ in Gikuyu corresponds regularly to class 5 /ɪ-/ in the dialects of the eastern slopes. The stems of the forms A_1, A_3, A_5, and A_8 are treated as identical as well (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). The differences between these forms are, consequently, considered as morphological divergence.

345 to fly (-ruka)

1.	-buːrʊka	A_1	1-26
2.	-burʊrʊka	A_2	27-30
3.	-bʊrʊka	A_3	33a, 40-44
4a.	-gʊrʊka	A_4	31-39
4b.	-ʊlʊka	A_4	45-97
5.	-ʊmbʊka	A_5	98, 100-105
6.	-ʊngʊka	A_6	99

Most forms are connected to CB *-bùduk- p.s. 43. As, however, CB *b is normally lenited in CKB, all relevant forms seem to have been borrowed from an external donor. The two forms subsumed under A_4 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba and 5f. *R_3 > /l/ in Kamba). The Kamba forms *-ʊlʊka* is most likely borrowed from Embu and Mbeere *-gʊrʊka*. The stem *-gʊrʊ-* denotes a concept such as 'up, above' (cf. Benson 1964: 130).

346 guinea fowl (kanga)

1.	NKANGA	A	1-97, 99, 102-105
2.	ngʊkʊ	B	100

Form A is related to CB *-kángà C.S. 1010 and reflected as *-nkanga* (Chuka, Meru, Tharaka) and *-nganga* (Gikuyu, Ndia, Gichugu, Embu, Mbeere, Kamba). Form B is also attested under the keyword *289 chicken*.

350 to begin (-anza)

1.	-ambɪrɪrɪa, -ambɪɪrɨa	A_1	1-44c, 98-100, 102, 104
2.	-ambɪɪa	A_2	46, 47, 49, 51-53, 55, 56, 58-65, 71, 75, 80, 81, 86-88, 93-95, 97
3.	-ambɪlɪlɨa	A_3	45, 48, 66, 67, 69, 70, 72, 76, 82, 84, 85
4.	-ambɪlɪlɪa	A_4	50, 54, 57
5.	-ambya	A_5	96
6.	ambɪria	A_6	105
7.	-anzɪa	B_1	68
8.	-anzɪ(ɪ)a	B_2	74, 77-79, 73, 83, 89, 90, 92
9.	-anza	B_3	91
10.	-anjia	B_4	101
11.	-anjɪrɪria	B_5	103

All forms subsumed under A are connected to CB *-yàmb- C.S. 1914. Only the forms A_1 and A_2 are, however, regular correspondences. The two forms A_3 and A_4, which show much more limited distribution, are borrowed into Kamba from the languages uphill. All forms subsumed under B go back to Swahili *-anza*.

351 to finish (-maliza)

1.	-ðirɨa	A	1-44c
2.	-mina	B	45-97
3.	-rɪkia	C_1	98-101, 103
4.	-rɪːkia	C_2	102, 104, 105

352 to do (-fanya)

1.	-ðiːðia	A	1-15
2.	-rʊða	B	16-34
3.	-ɪːka	C_1	31, 33b, 35-39
4.	-ɪka	C_2	45-105

353 work (kazi)

1.	ngʊːgɪ	A	1-16, 40-44
2a.	wɪːra	B	17-39, 98-105
2b.	wɪa	B	45-97

The two forms subsumed under B are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

354 to work (-fanya kazi)

1.	-rita ngʊːgɪ	A_1	1-15
2.	-ruta ngʊːgɪ, -ruta wɪːra	A_2	16-44, 98-105
3.	-kʊna wɪa	B	46, 47, 49, 50, 52, 54, 58, 60-63, 69, 72, 78, 79, 86
4.	-ɪka	C	51, 57, 59
5.	-tɛðya	D	45, 48, 64-67, 70, 71, 75, 76, 97
6.	-ðʊkʊma	E	53, 55, 56, 68, 73, 74, 77, 80-58, 88-96

The forms subsumed under A and B use the noun for *353 work*. Form C also occurs under the keyword *352 to*

do. Form D, a loan from Swahili -*saidia,* also appears under the keyword *147 to help*. Form E is borrowed from Swahili -*sukuma* 'to push'.

355 to try (-jaribu)

1.	-gɛːria	A_1	1-12, 22-25, 31-44, 98-105
2.	-bɛːria	A_2	13-21, 26-30
3.	-tata	B	45-97

Form A_1 is related to CB *-gèd- C.S. 797. The aberrance of form A_2 can not be explained.

356 to pull (-vuta)

1.	-KUːJIA	A_1	1-26, 38-44
2a.	-GUːJIA	A_2	27-37
2b.	-guːcia	A_2	98-101, 103
2c.	-guːsia	A_2	102, 104, 105
3.	-kuʃa	A_3	45-97

In accordance with the correspondence series |*J_2 + i|, the following forms are subsumed under A_1: -*kuːʒia* (Imenti, Igoji), -*kuːʐia* (Miutini), -*kuːdʒia* (Mwimbi, Muthambi), -*kuːtʃia* (E-Tharaka), -*kuːʃia* (W-Tharaka, Mbeere). The following forms are subsumed under A_2: -*guːʃia* (Chuka, Embu, Mbeere), -*guːtʃia* (Kiambu, Nyeri, Gichugu), and -*guːsia* (Muraŋa, Mathıra, Nyeri).

357 to push (-sukuma)

1.	-tindıka	A	1-45, 47, 48, 50-52, 54, 58, 60-63, 69-79, 82, 84, 86, 89, 94-103, 105
2.	-sʊkuma	B	46, 49, 50, 53, 55-57, 59, 65, 68, 80, 83, 87, 88, 90-93, 104
3.	-luuta	C	64, 66, 81, 85

Form A is related to CB *-tɟnd- C.S. 1758 and most widespread in Central Kenya Bantu. Form B is borrowed from Swahili. Form C is a loan of unknown origin.

358 to put into (-tia)

1a.	-ıkıra	A_1	1-44c, 98-101, 103
1b.	-ıkıa	A_1	45, 47-54, 56-69
2.	-ikia	A_2	102
3.	-ikıra	A_3	103, 104
4.	-tia	B	97

All forms subsumed under A are related to CB *-bíik- C.S. 122. The root -*ık*- also occurs under the keyword *352 to do*. The two forms subsumed under A_1 are treated as identical (*R_1 > /Ø/ in Kamba). Form B is an isolated loan from Swahili.

359 to turn, revolve (-zungusha)

1.	-gaːrʊra	A_1	1-44c
2.	-gariʊra	A_2	102
3.	-garʊrʊka	A_3	103
4.	-arʊra	A_4	99
5.	-ðirʊrʊkia	B_1	98, 101, 105
6.	-ðirʊkia	B_2	100
7.	-ðyʊʊkya	B_3	48, 59, 60, 63, 64, 67, 73, 77-79, 84, 88, 96, 97
8.	-ðyʊlʊlʊkya	B_4	57, 61, 76, 80, 87, 95

9.	-ðɪʊlʊlʊsia	B_5	54
10.	-ðyʊʊ(w)a	B_6	62, 68, 71, 72, 81, 82, 85, 86
11.	-ðyʊlʊlʊka	B_7	70, 75, 83, 89, 92
12.	-ðyʊʊka	B_8	93, 94
13.	-βɪndʊa	C	45-47, 49-56, 58, 65, 69
14.	-sunguka	D	74

The forms B_2, B_3, B_6, and B_8 correspond regularly (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). The Kamba forms B_4, B_5, and B_7 are borrowed from Gikuyu. Form C, restricted to Kamba, is related to CB *-pìndud- C.S. 1529. Form D goes back to the relevant Swahili word *-zunguka*.

361 to break (-vunja)

1.	-una	A	1-44c, 99, 101, 102, 105
2.	-tʊla	B_1	51, 53, 54, 57, 59, 71, 81, 88-92, 96
3.	-tʊlania	B_2	45
4.	-tʊlɪka	B_3	67
5.	-atʊa	C	48, 69
6.	-ananga	D_1	47, 49, 50, 55, 56, 64, 70, 73, 75, 77-80, 82-84, 87, 93-95
7.	-anangaŋa	D_2	62, 72, 86
8.	-bunza	E_1	97
9.	-bunzia	E_2	63
10.	-tila	F_1	58, 61, 74
11.	-tilania	F_2	76
12.	-tilaŋa	F_3	68
13.	-kʊa	G	46, 51, 52, 55, 57, 59, 60, 66, 71, 85
14.	-raga	H	98, 100
15.	-tarʊra	I	104
16.	-βeβɛnza	J	65

The forms subsumed under B and F, both showing limited distribution in Kamba, are loanwords of unknown origin. The two forms subsumed under E are irregularly related to CB *-bʉ́nj- C.S. 233. Since they are extremely restricted in distribution (and Kamba normally reflects CB *b as /Ø/), they seem to be directly borrowed from Swahili.

362 to tear (-pasua)

1a.	-tambʊra	A_1	1-26
1b.	-taɦʊra	A_1	101, 103
2a.	-tɛmbʊra	A_2	27-44
2b.	-tɛmbʊa	A_2	45-90, 92-97
2c.	-tɛɦʊra	A_2	98
4.	-tarʊra	A_3	99, 102, 105
5.	-tɛrʊra	A_4	100
7.	-gayania	B	104
8.	-tilaŋa	C	91

All forms subsumed under A are related to each other. The two forms subsumed under A_1 are treated as identical (*MB_1), as are the two forms subsumed under A_2 (*MB_1 and *R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

363 to divide (-gawanya)

1.	-gaa, -gaania	A_1	1-44c, 103
2.	-gagania	A_2	99
3.	-aania	A_3	45-47, 49-60, 67, 63, 66, 75, 80, 83, 87, 88, 92-96
4.	-gɛɛnia	A_4	105
5.	-gayania	A_5	98, 100, 102, 104
6.	-gaya	A_6	101
7.	-aaṇia	A_7	48, 61, 64, 65, 68, 76-79, 81, 82, 84, 89
8.	-awaaṇia	A_8	85
9.	-kawaaṇia	A_9	91
10.	-aia	B	62, 71, 72, 86, 90
11.	-tilania	C	74
12.	-atʊa	D	69, 70

This item demonstrates Swahili influence on Kamba. The forms A_1 and A_2 correspond to the Kamba form A_3. These forms seem to originate from a Common Central Kenya Bantu Stratum. It is, however, most likely that the forms $A_{7\text{-}10}$, which show a much more restricted distribution in Kamba, go back to Swahili *-gawanya*. The meaning of this word points towards language contact through trading relations. The forms B, C, and D are also likely to be loandwords, as their limited distribution in Kamba suggests.

364 to lift (-nyanyua)

1.	-kɪɪria	A_1	1-26, 40-44
2.	-kɪrɪria	A_2	27-39
3.	-ʊkɪlya	A_3	48, 56, 61-70, 72, 73, 75-84, 86-90-94, 96
4.	-ʊkɪlia	A_4	45-47, 49-55, 57-60, 74, 95
5.	-ʊkʊlya	A_5	71, 85
6a.	-ɔya	B	98-101, 103-105
6b.	-ɔsa	B	97
7.	-ɪnariguru	C	102

The occurrence of /l/ suggests that the forms A_3, A_4, and A_5 are loans in Kamba, possibly originating in the dialects uphill. The two forms subsumed under B are treated as identical ($*J_1$ > /y/ in Gikuyu and /s/ in Kamba).

365 to mould (-finyanga)

1.	-ʊmba	A_1	1-16, 27-84, 87-89, 91, 92, 94, 95, 98, 100-103, 105
2.	-umba	A_2	17-26, 104
3.	-ʊmbania	A_3	93
4.	-aka	B	99
5.	-sɔvya	C	96, 97

All forms subsumed under A are related to CB *-búmb- C.S. 199. Form A_1 also occurs under the keyword *366 to carve*.

366 to carve (-chonga)

1.	-acʊβya	A_1	46, 48, 49, 52-61, 65-67, 69-73, 75, 76, 78, 81-85, 87, 89, 92, 95, 96
2a.	-acʊɲia	A_2	105
2b.	-asʊɲia	A_2	102

3.	-icʊɦia	A_3	99, 101
4a.	-sɔnga	B_1	97, 104
4b.	-cɔnga	B_1	98, 100
5.	-ðɔngwa	B_2	90
6.	-gɔːɲa	C	103
7.	-asa	D_1	47, 62, 64, 68, 77, 79, 86, 93
8.	-AːJA	D_2	1-26, 39a
9.	-kɔnza	E	45, 51, 80, 88, 91
10.	-ʊmba	F	46, 50, 56, 63
11.	-uːmia	G	31-39
12.	-caːa	H	27-30, 40-44

In the list above, there are a number of items that are treated as identical in accordance with different correspondence series. The forms subsumed under A_2 and B are subsumed according to the series *C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Kamba and Murang'a. Both forms subsumed under D are only phonologically divergent in terms of vowel lengths. Carving seems to be a highly specialized activity. This might explain the relatively high diversity of the items above. In addition, the forms subsumed under A might go back to West-Rift Southern Cushitic **sup* (Kießling and Mous 2003: 336). Form F also occurs under the keywords *356 to mould* and *367 to forge*. All forms subsumed under B are borrowed from Swahili.

367 to forge (-fua chuma)

1.	-tura	A_1	1-44c
2.	-tua	A_2	45-64, 66-72, 74-76, 78, 80-83, 86-92, 94-96
3.	-tula	A_3	73, 77, 79, 84
4.	-kʊna	B	105
5.	-ðaria	C	104
6.	-ʊmba	D	102
7.	-ɦʊra	E	101, 100
8.	-ringʊra	F	99
9.	-kʊnja	G	24, 28, 40-44, 98

All of the varieties on the southern and eastern slopes of Mt. Kenya use form A_1, which corresponds to form A_2, prevailing in Kamba. A few locations in northern Kitui-Kamba have, however, borrowed the form A_3 from the languages of Mt. Kenya. In the western dialects, in contrast, a variety of unrelated forms is used. The two forms B and E also occur under the keyword *238 to pound*. Form D is also attested under the keyword *367 to mould*. Form F is also attested under the keyword *369 to dilute*. The relatively high diversity among the western dialects is due to the usage of different concepts to describe the activity of forging iron.

368 iron (chuma)

1.	cuːma, ncuːma	A_1	1-44
2.	cuma	A_2	98, 100, 101, 103
3.	suːma	A_3	102, 104, 105
4.	tʃʊma	A_4	45-49, 51-63, 66-68, 70-81, 83-90, 92, 93, 95-97
5.	sʊma	A_5	50
6.	ʃʊma	A_6	69, 91
7.	kɪaa	B	64, 65, 82, 94
8.	ɪðaga	C	6-26, 32, 40-44

The relevant CB item constructed by Guthrie is *-yúmà C.S. 2162. None of the forms above is, however, regularly derived from CB. All forms subsumed under A go back to the relevant Swahili noun. According to Möhlig (1974a: 160), form C originally denotes a kind of metal used prior to trading with Swahili merchants. It is unclear whether form B, used in only four Kamba locations, is connected to form C. In all of Central Kenya, the Swahili loanwords prevail.

369 to dilute (-yeyusha)

1.	-kɛrʊka	A	1-12, 14
2.	-rɛrʊra	B_1	13, 15-26, 105
3.	-ra:rʊra	B_2	31-44
4.	-rɛrʊkia	B_3	100
5.	-cʊngʊrʊria	C	27-30
6.	-ðiðimʊa	D_1	45, 46, 47, 51, 52, 58
7.	-ðiðimʊka	D_2	61
8.	-ðiðimʊkya	D_3	54, 55, 60
9.	-ðiðimʊsya	D_4	57
10.	-ðimʊka	D_5	53
11.	-ɔlɔlɔsya	E	81
12.	-ngululʊka	F	80
13.	-yɛyʊka	G_1	48
14.	-yɛyʊkya	G_2	59, 66, 90, 92
15.	-ɲingɪyʊkya	H_1	62, 72
16.	-ɲingɪɲʊka	H_2	63, 69, 71, 85, 86
17.	-ɲiɲika	H_3	65
18.	-ninikya	H_4	74
19.	-ɲiɲʊka	H_5	64, 88, 89, 96
20.	-ɲiɲʊkya	H_6	73, 77-79, 82, 84, 91
21.	-ɲɛɲʊka	H_7	87, 95
22.	-ðɛʊkya	I_1	49, 67, 75
23.	-ðɛʊkia	I_2	101
24.	-ðɛðʊkya	I_3	56
25.	-ðɛʊka	I_4	70, 83, 97
26.	-ringʊra	J	98
27.	-twɛkia	K	102
28.	-tʊngɪkʊra	L	103
29.	-nɪɲʊra	M	104
30.	-kamʊa	N	50
31.	-ɲululʊka	O	94

The high diversity of the items above can be partially explained by the fact that this keyword denotes a highly specialized activity. It is safe to assume that only experts (e.g. in iron work) use the word regularly, while in the general public this item is rather rarely used. There are some loanwords to be identified for this keyword: As the occurrence of /l/ suggests, the forms E, F, and O are borrowed from an yet unknown source. A few locations in Kamba use form G, which is borrowed from Swahili. Moreover, a few locations use a general term subsumed under I, which denotes the concept of *224 to boil*.

370 to paint (-paka rangi)

1.	-PAKA rangi	A	1-78, 80-99, 101-104
2.	-gɛmia	B	100, 105

All forms subsumed under A are regularly related, attested as *-vaka* (Embu, Mbeere), *-ɦaka* (Gikuyu, Chuka, Meru, Tharaka), and *-βaka* (Kamba, Ndia, Gichugu). *rangi* is a Swahili loan, originally of Persian descent.

372 market (soko)

1.	ɪ.rurɪ	A	3a, 11, 13, 14, 26
2.	ɪ.ðɔkɔ	B_1	1-6
3.	ɪ.ðɔkɔ, ðɔkɔ	B_2	7-44, 98, 100-102, 104, 105
4.	ndʊɲʊ	C	40-87, 98-93, 95-97, 103
5.	kɪ.ŋaŋa	D	94

The forms subsumed under B are borrowed from Swahili via Gikuyu (cf. $*C_2$). It is important to note that trading in precolonial times was mostly a private matter, except for specialists, who set shops in the Kenyan Highlands. Fixed markets, as we encounter them in the area today, were established only after the beginning of colonialization.

373 to buy (-nunua)

1.	-gʊːra	A_1	1-44
2a.	-gʊra	A_2	98-103, 105
2b.	-ʊa	A_2	45-48, 50-53, 55, 56, 58, 61, 63, 65, 67, 68
3.	-ʊːra	A_3	104
4.	-ðɔɔa	B	49, 54, 57, 59, 60, 62, 64, 66, 69-85, 87-97

All the forms subsumed under A are possibly connected to CB *-yùd- C.S. 2149. The forms subsumed under A_2 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ and $*R_1$/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

374 to sell (-uza)

1.	-ɛndia	A	1-44c, 98-105
2.	-ta	B	45-48, 50-52, 55, 57-61, 65, 68, 71, 81, 83, 86
3.	-ðɔɔʃa	C	49, 53, 54, 56, 62-64, 66, 67, 69-80, 82, 84, 85, 87-97

In Kamba, the two forms B and C are used. The latter is a causative derivation of *-ðɔɔa* (*373 to buy*).

375 to exchange (-badilishana)

1.	-kʊːrania	A_1	1-44
2.	-kʊanɪa	A_2	45-49, 51, 53-58, 60, 66, 61, 64-69, 75-80, 86, 88, 89, 90, 93-96
3.	-kʊana	A_3	52, 59, 91, 92, 97
4.	-kʊanana	A_4	71, 74
5.	-kʊananɪa	A_5	63, 70, 73, 81-84, 87
6a.	-cɪnjania	B	24, 28, 35, 36, 39b, 98-101, 103
6b.	-sɪnjania	B	102, 104, 105

The two forms subsumed under B are English loanwords; they are treated as identical ($*C_1$/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a, Ndia und Gichugu). The diversity among the items subsumed under A is due to morphological divergence (e.g. reciprocal, causative).

376 debt (deni)

1.	ɪ.randʊ	A	1-30, 40-44
2a.	ðiːrɪ	B	31-39, 98-105
2b.	ðiɪ	B	45, 46, 48, 49, 52, 54, 55, 56, 58, 59, 68, 70, 71, 75-79, 81, 82, 84, 86, 89, 92, 95-97
3.	ɪ.kɔani	C_1	61, 64, 65, 67, 94
4.	ɪ.kʊani	C_2	50, 53, 60, 69, 80, 83, 85, 88, 90, 91
5.	mbilʊ	D	74

Form A is related to CB *-dàndú C.S. 497. The two forms subsumed under B are treated as identical (*R_1/_/ɪ/ > /Ø/ in Kamba). The forms subsumed under C also occur under the keyword *175 lawsuit*. Form D is possibly borrowed from English *bill*. According to Möhlig (1974a: 161), form B is widespread beyond the boundaries of Central Kenya Bantu and across the lines of language families.

377 to pay (-lipa)

1.	-RɪPA	A	1-105

All of Central Kenyan Bantu uses the same form related to CB *-dìp- C.S. 589 and reflected as follows: *-rɪɦa* (Gikuyu, Chuka, Meru, Tharaka), *-rɪva* (Embu, Mbeere), *-rɪβa* (Ndia, Gichugu), *-ɪβa* (Kamba)

378 money (pesa)

1.	mbɛːca	A_1	1-30, 35-44,
2.	mbɛːsa	A_2	31-34, 102, 104, 105
3a.	mbɛsa	A_3	45-97
3b.	mbɛca	A_3	98-101, 103
4.	mbia	B	17-22, 26, 30, 36, 38b, 40-44

All forms listed here are loans from Swahili, probably borrowed via Kamba. The two forms subsumed under A_3 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Kamba). Form B goes back to the Swahili word *rupia* for rupee (Möhlig 1974a: 161).

379 cheap (rahisi)

1a.	raici	A	1-44c
1b.	raiði	A	98-105
1c.	laisi	A	47-53, 55-61, 63-70, 72-76, 78, 80, 83, 84, 86-97
2.	ðɔɔa mʊnini	B	46, 54, 62, 77, 79, 81, 82
3.	βʊðʊ	C	71, 85

All forms subsumed under A are loans from Swahili; they are treated as identical (*C_2. and *R_3). The word *laisi* is a direct borrowing from Swahili into Kamba, succesively transferred into the dialects on the slopes of Mt. Kenya. The western dialects of Gikuyu, Ndia, and Gichugu independently borrowed *raiði* from Swahili. Form B is a circumscription literally meaning 'small sale' (cf. *374 to sell*, *575 small*).

380 expensive (ghali)

1.	gɔrɔ	A_1	1-44c, 98-105
2.	-ʊlʊ	A_2	51, 53, 57, 67, 70, 78, 79, 82-84
3.	-bɪŋa 'strong'	B	45-47, 50, 52, 54-56, 58, 60, 61, 64-66, 68, 85, 96
4.	-nɛnɛ 'big'	C	48, 49, 62, 71-73, 82, 86, 90
5.	-ingɪ 'much'	D	59
6.	-kalɪ 'fierce'	E	63, 69, 70, 87-89, 91-95, 97
7.	-ʊmʊ 'firm, hard'	F	75, 76, 77, 79, 80, 81

The two forms subsumed under A express the notion of a 'high price'. The two words are possibly borrowed from Maasai *a-gól* 'to be strong' (Tucker & Mpaayei 1955: 249). The relatively high diversity is due to the use of different concepts.

381 hunger (njaa)

1.	mpara	A	1-17, 21-23
2.	ɪ.ðʊ:ra, yʊ:ra	B	17-44
3a.	nzaa	C	45-97
3b.	njaa	C	102
4.	ŋaragu	D	98, 99, 103, 104
5.	kʊ.ɦuta	E	100-101

The two forms subsumed under C are treated as identical (*NJ). The relevant CB item is *-jàdà C.S. 917. From a distributional perspective, it is, however, not unlikely that especially the form *njaa*, only occuring in Murang'a, is borrowed from Swahili.

382 to eat (-la)

1.	-rɻa	A_1	1-25
2.	-rɪa	A_2	26-44, 98-105
3.	-ya	A_3	45-97

All forms are related to CB *-dí C.S. 550.

383 food (chakula)

1.	bɪa-kʊ.rɪa	A_1	3-13
2a.	ɪ.ri:ɔ	A_2	1-3, 13-17, 24, 26, 31-44
2b.	i.ri:ɔ	A_2	98-105
3.	lɪu	A_3	45-97
4.	ɲɔni	B	17-30

All forms subsumed under A are related to CB *-díó C.S. 554. The two forms subsumed under A_2 are treated as identical, as class 5 /i-/ in Gikuyu, Ndia, and Gichugu regularly corresponds to class 5 /ɪ-/ in the dialects on the eastern slopes of Mt. Kenya. The occurrence of /l/ in Kamba suggests that A_3 is borrowed from the dialects in the vicinity of Mt. Kenya.

384 to swallow (-meza)

1.	-mɛria	A_1	1-44c, 98-104
2.	-mɛlya	A_2	45-97
3.	-tanʊka	B	105

Both forms subsumed under A are linked to CB *-mèd- C.S. 1294. The occurrence of /l/ in form A_2 suggests, however, that this item is a loanword in Kamba, A_1 being the source word of this form.

385 to be satiated (-shiba)

1.	-ɲira	A	1-26
2.	-ba:a	B	27-44
3.	-Pʊna	C_1	45-101, 103
4.	-ɦʊ:na	C_2	102, 104, 105

Subsumed under C_1, the following forms are attested in Central Kenyan Bantu (*P_1): *-βʊna* (Kamba), *-ɦʊna* (Nyeri, Kiambu, Mathira).

386 to belch (-teuka)

1.	-ɛrʊːka	A_1	1-44c, 98, 99, 101
2.	-ɛlʊka	A_2	45-97
3.	-ɛrʊrʊka	A_3	103
4.	-ðıðıa	B	102
5.	-taβıka	C	104

The occurrence of /l/ in form A_2 suggests that this is a loanword in Kamba. Form C also occurs under the keyword *067 to vomit*.

387 thirst (kiu)

1.	ɲɔɔnta	A_1	1b, 15
2.	ɲɔNTA	A_2	1a, 3-14, 16-26, 31, 33, 34b
3.	ɪ.nɔnta	A_3	27-30
4.	ɲɔːta	A_4	34c, 35, 36, 38, 39
5.	mʊ.ɲɔndu	A_5	34a
6.	ʊ.ɲɔːtu	A_6	37
7.	kʊ.ɲɔnda	A_7	32a, 32b
8.	ɲɔta	A_8	98-100, 103, 105
9.	kʊ.ɲɔta	A_9	101, 102, 104
10.	bʊʊta	B	40-44
11.	w.aʊni	C_1	45, 47-57, 59, 61, 64-66, 69, 87-89, 92
12.	w.ʊni	C_2	58
13.	wɔɔni	C_3	60, 63, 67, 68, 90, 91, 93-97
14.	mʊ.ɲalɔ	D_1	62, 70, 72, 73, 85, 86
15.	mʊ.ɲaʊ	D_2	71, 74-84

All forms subsumed under A are related to CB *-yótà C.S. 2137. Subsumed under A_2, the following forms are attested (*NT): *ɲɔnta* (1a, 3-6 Imenti; 16-26 Mwimbi und Muthambi) and *ɲɔnda* (31, 33, 34b Embu). The difference between A_2 and A_7 is, consequently, treated as morphological divergence. The occurrence of /l/ suggests that form D_1 is a loanword in Kamba. The relatively high diversity of the items above can, however, not be explained in detail.

388 to drink (-nywa)

1.	-ɲa	A_1	1b, 2, 16
2.	-ɲua	A_2	1a, 3-15, 17-44, 99-102, 104, 105
3.	-ɲwa	A_3	45-98, 103

All forms are related to CB *-nyṷ- C.S. 1397. The prevailance of form A_2 in the Meru dialects on the eastern slopes might be due to school education (TLY Kimeru: 26).

389 egg (yai)

1.	nkara	A	1-8, 12, 15
2.	ɪ.tumbɛ	B_1	7-26, 31-39
3a.	ɪ.tumbɪ	B_2	45-48, 50-52, 54-61, 64, 67, 80, 87
3b.	i.tumbɪ	B_2	98-105
4.	ɪ.kɔmɛ	C_1	17, 18, 27-30, 40-44
5.	nkɔmɛ	C_2	7, 10-12

6.	ɪ.ðaɛ	D	49, 53, 62, 63, 65, 66, 68, 69-79, 81-86, 88-97

All forms subsumed under B are related to CB *-tʊ́mbí C.S. 1873. The two forms subsumed under B_2 are treated as identical, as class 5 /ɪ-/ in Kamba regularly corresponds to class 5 /i-/ in Gikuyu, Ndia, and Gichugu.

390 honey (asali)

1.	naincU	A	1-6
2.	gU.UkI, U.UkI	B_1	7-44, 98-105
3.	UkI	B_2	45-97

Form A is a Maasai loan going back to *en-áíshó* (Tucker & Mpaayei 1955: 295). The forms subsumed under B are related to CB *-júkì C.S. 962.

393 oil (mafuta)

1a.	ma.guta	A	1-44c, 98-105
1b.	ma.uta	A	45-97

Both forms are related to CB *-gʊ́tà C.S. 914 and treated as identical (*G/_/u/ > /Ø/ in Kamba).

394 banana (ndizi)

1a.	ɪ.rigU	A	1-44c, 98-105
1b.	ɪ.iU	A	45-97

Both forms are treated as identical (*R_1/_/i/ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba). They seem to originate from a Common Central Kenya Bantu Stratum.

395 orange (chungwa)

1a.	ɪ.cungwa	A_1	1-6, 26, 31-39
1b.	i.cungwa	A_1	98-101, 103
1c.	ɪ.sungwa	A_1	45-97
1d.	i.sungwa	A_1	102, 104, 105
1e.	ɪ.cunkwa	A_1	7-30
3.	ɪ.cungUa	A_2	40-44

All forms are borrowed from Swahili. All five forms subsumed under A_1 are treated as identical for phonological and morphological reasons: cf. *NK_1 and *C_1/_/i, u/ > /s/ in Muraŋa, Ndia, Gichugu und Kamba; moreover, class 5 /i-/ in Gikuyu, Ndia und Gichugu corresponds regularly to class 5 /ɪ-/ in the Eastern Kirinyaga dialects as well as in Kamba.

396 sugar cane (muwa)

1a.	kɪ.gwa	A_1	1-30, 98-101, 103
1b.	kɪ.wa	A_1	45-97
2.	kɪ.gUa	A_2	31-39, 102, 104, 105
3.	kɪ.Ugwa	A_3	40-44

The two forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba). *kɪ.gwa* (A_1) is the prevailing form on the western and eastern foothills of Mt. Kenya. Its widespread use might be the result of school education (cf. Wanjaũ 1989: 23; Mũthoni 2007: 65; TLY Embu 1: 3).

397 mango fruit (mwembe)

1a.	ɪ.ɛmbɛ	A_1	1-30, 40-97
1b.	i.ɛmbɛ	A_1	101, 102, 104, 105
2.	ɪ.gɛmbɛ	A_2	31-39

3.	i.ɦɛmbɛ	A_3	98, 100
4.	mɪ.ɛmbɛ	A_4	99
5.	i.tunda rɪa mangɔ	B	103

The two forms subsumed under A_1 are treated as identical, as the noun classes correspond regularly. The form *i.ɛmbɛ* prevails in the western dialects, possibly due to vernacular teaching in Gikuyu (Mũthoni 2007: 65). Form B is a literal translation of the keyword using the genuine form *i.tunda* for 'fruit' and the English word for 'mango'.

398 beans (maharagwe)

1.	mʊ.ŋaʊ	A	1-8
2.	mbɔːcɔ	B_1	7-44, 101, 103
3a.	mbɔcɔ	B_2	98-100
3b.	mbɔsɔ	B_2	45-87, 89, 91, 92, 94, 96, 102, 104, 105
4.	NTUNU	C	27-31
5.	ma.alakwe	D	88, 90, 93, 95, 97

Both forms subsumed under B_2 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Kamba, Murang'a, Ndia, and Gichugu). Subsumed under C, the following forms are attested (*NT): *ntunu* (27-30 Chuka) and *ndunu* (31 Embu). The latter was probably borrowed from Chuka. Form D, restricted to a few Kamba locations, is a Swahili loanword.

399 tomato (nyanya)

1.	ɲaɲa	A	1-65, 71-75, 77, 78, 79, 81, 84, 86, 87, 97-105
2.	ndindi	B	66-70, 76, 80, 82-85, 87-96

Form A is borrowed from Swahili and widely used in CKB. In Kamba, it seems to be replacing the genuine form B.

400 cassava (muhogo)

1.	Mʊ.KWAːJIɪ	A_1	1-21
2.	Mʊ.GWAːJɪ	A_2	22, 24, 26, 40-44
3.	mʊ.anga	B_1	22-25, 27-39, 98-100, 102-105
4.	yanga	B_2	45-97
5.	mɪ.anga	B_3	101

402 yam (kiazi kikuu)

1.	gɪ.kʊa	A_1	1-15
2.	gɪ.kʊaa	A_2	17-30
3.	gɪ.kʊ̯aa	A_3	31-44
4a.	gɪ.kwa	A_4	98-105
4b.	kɪ.kwa	A_4	45-49, 51-60, 64, 65, 67-70, 72, 73, 75-87, 89, 91, 92, 95-97
5.	ndʊma	B	50, 61, 62, 63, 66, 71, 74, 88, 90, 93

All forms subsumed under A are related to CB *-kúá C.S. 1166. The two forms subsumed under A_4 are treated as identical (cf. *K_3; Dahl's Law inactive in Kamba).

403 pepper (pilipili)

1.	ncini	A_1	1-21, 24, 25, 27-30, 40-44
2.	ncuna	A_2	17-23, 26

3a.	ndʊrʊ	B	31-34, 35c, 39
3b.	ndʊlʊ	B	45-61, 64, 65, 90, 97
4.	ka.ɲɛnjɛ	C	35-38
5.	biribiri	D	98-105
6.	ɲaıɪka	E	62, 63, 66-89, 91-96

The two forms subsumed under B are treated as identical (*R_3). They are very likely to be loans. The direction of borrowing and the donor language are, however, unclear. Form D, limited to Gikuyu, Ndia, and Gichugu, is borrowed from Swahili.

405 flour (unga)

1.	mʊ.tu	A	1-102, 104, 105
2.	i.hɔa	B	103

Form A is related to CB *-tʉ̀ C.S. 1856.

406 maize (mahindi)

1.	MPɛMPɛ	A_1	1-44, 74, 92, 96, 98-105
2.	MPɛMPA	A_2	17-25, 45-73, 75-91, 93-95, 97

Both of the forms above are related to CB *-pémbá C.S. 1475. In accordance with the correspondence series *MP_2, the following forms are subsumed under A_1: *mpɛmpɛ* (Meru, Tharaka) and *mbɛmbɛ* (Gikuyu, Ndia, Gichugu, Embu, Mbeere, Chuka, Kamba). Subsumed under A_2, the following forms are attested: *mpɛmpa* (Mwimbi, Muthambi) and *mbɛmba* (Kamba).

407 millet (mtama)

1.	mʊ̯.ɛːrɛ	A_1	1-44c
2a.	mw.ɛɛ	A_2	51, 55, 56, 59, 60, 62, 64, 66, 69, 72, 73, 86, 87, 91-93
2b.	mw.ɛːrɛ	A_2	99
3.	mʊ.Pıa	B_1	45, 46, 49, 61, 78, 81, 82, 84, 100-105
4.	mʊ.bya	B_2	48, 63, 65, 67, 70, 71, 76, 77, 79, 80, 85, 88, 89, 90, 94-96
5.	nðia	C_1	68
6.	mʊ.ðia	C_2	74
7.	mʊ.ðɛa	C_3	83
8.	w.ımbı	D	47, 50, 52-54, 57, 58, 75, 77-79, 82, 84
9.	mʊ.gɛmbɛ	E	98

All forms subsumed under A are related to CB *-bèdé C.S. 70. Both forms subsumed under A_2 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). In accordance with the dia-series *P_1, the following forms are subsumed under B_1: *mʊ.ɦıa* (Nyeri, Kiambu, Muraŋa, Mathira) and *mʊ.βıa* (Kamba). The reasons for the relatively high diversity are unclear. The highly limited distribution of the forms subsumed under C suggests that these are loanwords.

408 rice (mchele)

1a.	mʊ.cɛːrɛ	A_1	1-44c, 98-101, 103
1b.	mʊ.sɛːrɛ	A_1	102, 104, 105
2.	mʊ.sɛlɛ	A_2	45-96

All of the items above are borrowed from Swahili (most likely via Kamba). Both forms subsumed under A_1 are treated as identical (*C_1/_/a, ɛ, ı, ɔ, ʊ/ > /s/ in Murang'a, Ndia und Gichugu).

409 clothing (nguo)

1.	ngʊa	A_1	45, 47-57, 59-97
2.	ngʊɔ	A_2	46, 58
3.	nguU	A_3	1-44c
4.	nguɔ	A_4	98-105

All forms are related to CB *-gùbò C.S. 873. The relatively high diversity of these items combined with the particular meaning of this keyword suggest, however, that Swahili influence might have been at play in the emergence of these four phonologically divergent word forms. The prevailing form in Kamba is A_1, which is used in vernacular teaching (TLY Kamba Course Book 1: 7).

410 to wear, dress (-vaa)

1.	-ɪːkɪra (nguU)	A_1	1-44c, 98, 100-102, 104, 105
2.	-ɪkɪa (ngua)	A_2	45-97
3.	-ɪkya (ngua)	A_3	62, 77, 79
4.	-ɪɦumba	B	103

All forms subsumed under A literally mean 'to put into (clothes)' (cf. *358 to put into*).

413 hat (kofia)

1.	nkɔbia	A_1	1-12
2.	NKɔPIA	A_2	13-39, 45-61, 63-67, 69, 72, 73, 75, 80, 83, 85-93, 96, 99-102, 105
3.	ngɔːbia	A_3	40-44
4.	ngɔbi̯a	A_4	62, 71, 74, 77, 78, 79, 81, 84, 95, 97
5.	ngʊbia	A_5	98
6.	kɔbia	A_6	68
7.	kɪ.ɛbɛɔ	B_1	82, 70, 94
8.	kɪ.bɛyɔ	B_2	76
9.	ngɔrɔ	C	103

All forms subsumed under A and B made their way into Central Kenya via parallel borrowing from Swahili. This explains the relatively high diversity of the items above. In accordance with the correspondence series *P_1 and *NK_1, the following forms are subsumed under A_2: *nkɔɦia* (Igoji, Mwimbi, Muthambi, Chuka), *ngɔvia* (Embu, Mbeere), *ngɔɦia* (Nyeri), and *ngɔβia* (Nyeri, Kiambu, Murang'a, Gichugu, Kamba).

414 shirt (shati)

1a.	caːti	A_1	1-44c, 101, 103
1b.	saːti	A_1	102, 104, 105
2a.	sati	A_2	45-97
2b.	cati	A_2	98-100

All forms are borrowed from Swahili. The forms subsumed under A_1 and A_2 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Murang'a, Ndia und Gichugu and *C_1/_/a, ɛ, ɪ , ɔ, ʊ/ > /s/ in Kamba).

415 shorts (kaptula)

1.	curuaːrɪ	A_1	1-21
2.	curuaːri	A_2	22-26, 35-39
3.	curubaːrɪ	A_3	27-30
4.	ðurubari	A_4	31-34
5.	cʊraU̯ːri	A_5	40-44

6.	sulualɪ	A_6	45, 47, 48, 50, 51, 53, 54, 56-60, 62, 64, 68-74, 76-79, 81-84, 86-88, 91, 96
7.	ðuruari	A_7	98
8.	ðuruarɪ	A_8	99, 101-105
9.	sulualɪ ngubɪ	A_9	49, 55, 61, 65-67, 85, 95
10.	sulualɪ mʊ.kubɪ	A_{10}	75, 80, 89, 93
11.	kɪ.bandɪ	B_1	46, 52, 63, 73
12.	kɪ.bandɛ	B_2	87, 90, 92, 94, 97
13.	kɪ.baði	B_3	100

All forms subsumed under A go back to the Swahili word *suruali* 'trousers'. Kamba borrowed this items directly from Swahili passing it on into the dialects on the eastern slopes of Mt. Kenya as well as into Mbeere (cf. $*C_1$) . Independently, Gikuyu also borrowed this item from Swahili eventually transferring it into Embu (cf. $*C_2$). The origin of the words subsumed under B is unclear. The stem of form B_3 also appears under *417 to iron.*

416 trousers (suruali)

1.	mʊ.buːtɔ	A_1	1-44c, 102, 104, 105
2.	mʊ.butɔ	A_2	45-48, 50-53, 56-60, 63-65, 69, 71, 74, 76, 78, 79, 83, 86-88, 90, 91, 92, 94, 96, 101, 103
3.	mʊ.guðɔ	A_3	98, 99
4.	sulualɪ ndasa	B_1	49, 54, 55, 65, 62, 66, 68, 70, 72, 73, 77, 79, 82, 84, 87, 95
5.	sulualɪ mw.asa	B_2	75, 80, 81, 89, 93, 97
6.	sulualɪ	B_3	61, 67
7.	ðuruari	B_4	100
8.	ngasa	C	85

The forms subsumed under B are borrowed from Swahili (cf. *415 shorts*). The form A_2 is widespread in Kamba, which is possibly due to school education (Mwende 2006: 83).

417 to iron (-piga basi)

1.	-Pʊ:RA baci, RINGA baci	A_1	1-6, 40-44, 98-105
2.	-Pʊ:RA baði, RINGA baði	A_2	7-12, 15, 24, 25, 30-39
3.	-baːca	A_3	13-29
4.	-kuna basi	A_4	45-97

All forms are related to the notion of *-piga basi* 'to iron' in Swahili, from which the concept was borrowed. Just as Swahili, most of the dialects of Central Kenyan Bantu circumscribe this concept by using a verb for *163 to beat* and *164 to hit*. Igoji, Mwimbi, Muthambi, and Chuka verbalized the Swahili noun *basi,* reflecting it as *-baːca.*

418 stockings (soksi)

1.	sɔksi	A_1	1-3, 5, 15, 24
2a.	cɔːgici	A_2	4, 6-14, 16-23, 25-39, 40-44
2b.	ðɔːgiði	A_2	98-105
3.	sɔkɪsɪ	A_3	45-97

All of the forms listed here are borrowed from Swahili. Again, this item demonstrates parallel borrowing: While Kamba borrowed this items directly from Swahili and transferred it into the dialects on the eastern slopes of Mt. Kenya, Gikuyu, Ndia, and Gichugu acquired this items independently. Both forms subsumed A_2 under are treated as identical ($*C_2$).

419 shoe (kiatu)

1.	kɪ.ra:tU	A_1	1-44c, 104, 105
2a.	kɪ.atU	A_2	45-97
2b.	kɪ.ratU	A_2	98-103

The two forms subsumed under A_2 are treated as identical (*R_1/_/a, ɛ, ɔ, U/ > /Ø/ in Kamba).

420 fingerring (pete)

1.	kɪ.mata	A	1-12
2.	mbɛtɛ	B	7-105

Most of the languages and dialects of Central Kenya Bantu use a form related to CB *-pété C.S. 1497. According to Möhlig (1974a: 167), however, borrowing from Swahili cannot be ruled out for this item. The prenasalization in form A seems to justify this claim (otherwise **ɦɛtɛ* would be expected). The origin of form A, only occuring in Northern Imenti, Nkubu, and Miutini, is unclear.

421 to plait hair (-suka nywele)

1.	-cu:ka	A_1	1-16
2.	-suka	A_2	46, 50, 51-57, 59-61, 65, 70
3.	-kUndɪka	B	17-25
4.	-PɪNDA	C	26-44, 64, 92, 94, 101, 102
5.	-kɔŋa	D	45, 47, 48, 49, 66
6.	-kwata	E	58, 62, 67, 71-75, 77-82, 84, 86, 87, 89, 91, 93, 95, 96
7.	-sanUa	F	63, 68
8.	-sɔnga	G	69, 87, 90, 97
9.	-ɔba	H	85
10.	-tuma	I	98-100, 104, 105
11.	-ɦaa	J	103

Both forms subsumed under A are borrowed from Swahili. The use of this Swahili loanword in Kamba seems to be encouraged by vernacular teaching (Mwende 2006: 83). In accordance with dia-series *P_1, the following forms are subsumed under C: *-ɦɪnda* (Chuka, Tharaka, Kiambu, Muraŋa), *-vɪnda* (Embu, Mbeere), and *-βɪnda* (Kamba). They go back to CB *-pìnd- C.S. 1542. Form E also occurs under the keywords *098 to seize* and *557 to touch*. Form G also appears under the keyword *366 to carve*, form I is also attested with the meaning *263 to sew*. The different concepts used to describe the activity of plaiting hair explains the high diversity of the items above.

423 darkness (giza)

1.	mUndu	A	1-12, 14-16
2.	NTUMA	B	13, 16a-39, 98-105
3.	mbindu	C_1	28, 29
4.	mU.indu	C_2	40-44
5.	kɪ.bindu	C_3	45-97

In accordance with the correspondence series *NT, the following forms are subsumed under B: *ntuma* (13 Igoji, Mwimbi, Muthambi, Chuka) and *nduma (*Embu, Mbeere, Gikuyu, Ndia, Gichugu).

425 light (nuru)

1.	wɛ:rU	A_1	1-12, 40-44
2.	wɛ:ru	A_2	13-31
3.	U.ðɛri	B	31-39, 98-105

4.	ky.ɛni	C	45-97

426 sun (jua)

1.	ri.ʊ:a	A_1	1-44c
2.	ri.ʊa	A_2	98-105
3.	sʊa	B_1	45-61, 63-70, 72, 73, 75-78, 81-97
4.	ɪ.sʊa	B_2	62, 74, 79
5.	ʃʊa	B_3	71, 80

All of Central Kenyan Bantu uses a form connected to CB *-júbà C.S. 955. The Kamba forms, however, are most likely influenced by the relevant Swahili word. The prevailing form B_1 is used in Kamba school literature (Mwende 2006: 41).

427 to shine (-ng'aa)

1.	-a:ra	A_1	7-21, 26-44, 102
2.	-na:ra	A_2	100
3.	ða:ra	B_1	1-6
4.	-ða:rara	B_2	22-25
5.	-kɛnga	C_1	45, 48, 53, 57, 59, 60, 63, 66, 67, 69, 73, 77, 79, 83, 84, 93
6.	-kɛngakɛnga	C_2	49, 70, 78, 81, 82, 91
7.	-tisa	D_1	47, 48, 60, 61, 71, 76, 80, 86, 89
8.	-tisatisa	D_2	62, 64, 72, 74, 87, 94, 95, 96
9.	-kɛna	E_1	51, 52, 58, 68, 92
10.	-kɛnia	E_2	55
11.	-kɛnakɛna	E_3	65
12.	-ɦɛnia	E_4	98
13.	-ðɛa	F	46, 54, 85, 90
14.	-ɪruɦa	G	99
15.	-caina	H	101
16.	-ðɛrʊrʊka	I_1	103
17.	-ðɛrɛruka	I_2	104

The reason for the high diversity of the items above is unclear. Possibly, different concepts are used to express this notion.

428 shadow (kivuli)

1.	kɪ.rundu	A	1-30, 40-44, 101
2.	kɪ.rʊru	B_1	31-39, 103
3.	ky.uu	B_2	46, 47, 51-53, 55-60, 63-67, 70, 71, 86, 88-92
4.	kɪ.ɪruru	B_3	98-100, 102, 104, 105
5.	kɪ.(w)uu	B_4	62, 72, 73, 76-79, 81, 82, 84, 85
6.	mʊ.ʊɲi	C_1	45, 48-50, 54, 61, 67, 69, 74, 75, 78, 80, 87, 93, 94, 95, 96
7.	m.ʊni	C_2	50, 58
8.	kɪ.buli	D	83, 97

Form D, restricted to two locations in Kitui-Kamba, is a loan from Swahili. The reason for the relatively high diversity of the remaining items above is unclear.

429 heat (joto)

1.	mU.rugurıra, mU.ruutıra	A_1	1-16, 25, 28-31
2.	mU.ırugutıra	A_2	18, 22-26, 31a
3.	mU.rugUtıra	A_3	40-44
4.	U.rugarı	B_1	17-21, 35-39, 98-105
5.	U.rugari	B_2	32-34
6.	m.u(u)tia	C_1	45, 48-52, 54-57, 60, 62-64, 66, 69, 72, 74, 82, 84, 85, 88, 93, 95, 96
7.	y.uutia	C_2	46, 60, 75, 81, 83
8.	UbyUbu	D_1	47, 53, 58, 59, 61, 65, 67, 68, 70, 71, 80, 86, 87, 89, 90, 92, 94
9.	UbyU	D_2	73, 77-79
10.	kU.byUbia	D_3	76

The forms subsumed under D are related to CB *-píù C.S. 1510. Möhlig (1974a: 168) suspects that the high diversity of the items above is due to little usage.

430 moon (mwezi)

1.	mU.ɛːri	A_1	1-44c
2.	mw.ɛi	A_2	45-97
3.	mw.ɛːri	A_3	98-105

All forms are related to CB *-yédị̀ C.S. 1964 and treated as phonologically divergent.

431 star (nyota)

1.	njɔta	A_1	1-7, 15
2.	njata	A_2	7-14, 16-26, 29b, 31-39, 98-105
3.	nða:ta	A_3	27-30, 40-44
4.	ndata	A_4	45-97

432 wind (upepo)

1.	r.uːwɔ	A_1	1-16, 40-44
2a.	rU.buːbɔ	A_2	28a, 31-39
2b.	rU.ɦuːɦɔ	A_2	102, 104, 105
3.	rU.ɦuɦɔ	A_3	98-101, 103
4.	rU.kUngi	B_1	17-30, 33a-c, 38a
5.	U.kU:ngi	B_2	62, 64, 65, 72-74, 76, 81, 82, 84, 86-89, 91, 92, 96
6.	kı.sɛːβɛ	C_1	45, 47-52, 57-61, 63, 66, 70, 75, 77-79, 83, 94, 95
7.	nzɛːβɛ	C_2	46, 53-56, 67, 68, 69, 71, 80, 87
8.	mbɛβɔ	D	85, 97
9.	U.kuutani	E_1	90
10.	kı.kuutani	E_2	93

According to Möhlig (ibid.), the high diversity is due to two factors, little usage and the use of onomatopoetic forms. In accordance with the dia-series $*P_1$, the two forms subsumed under A_2 are treated as identical.

433 to blow (-vuma)

1.	-PURU꞉TANA	A_1	1-39, 98, 102-105
2.	-butana	A_2	40-44, 62, 72, 73, 77-79, 81, 82, 84, 86, 88
3.	-uutana	A_3	45-55, 57-61, 64-67, 70, 71, 76, 80, 83, 85, 87, 89-92, 96
4.	-PUPA	B	69, 93, 99-101

The relevant item constructed by Guthrie is *-pʊ̀ʊ̀p- C.S. 1623. Presumably, only form B is related to CB. The forms subsumed under A are onomatopoetica. In accordance with the dia-series *$P_1$the following forms are subsumed under A_1: *-ɦuru꞉tana* (Meru, Chuka, Nyeri, Muraŋa, Mathıra, Ndia, Gichugu) *-vuru꞉tana* (Embu, Mbeere). Moreover, the following two forms are subsumed under B (*P_1): *-βuβa* (69 and 93 Kamba) *-ɦuɦa* (Nyeri, Kiambu).

434 cloud (uwingu)

1a.	ɪ.tu	A_1	1-48, 50-60, 64, 67-69, 74, 75, 77-79, 81, 82, 84, 85, 90, 91
1b.	i.tu	A_1	98, 99, 100, 105
2.	ma.tu	A_2	101, 102, 103, 104
3.	ɪ.ðɛɔ	B_1	49, 63, 65, 66, 70, 71, 76, 80, 83, 88, 89, 92-97
4.	ɪ.ðwɛɔ	B_2	61, 62, 87
5.	ɪ.ðyɔ	B_3	72, 86
6.	k.uuβutana	C	73

All forms subsumed under A are related to CB *-tʊ̀ C.S. 1855. The two forms subsumed under A_1 are treated as identical, as class 5 /i/ in Gikuyu and Gichugu regularly corresponds to class 5 /ɪ-/ in the Eastern Kirinyaga dialects as well as in Kamba. A similar form to form C is also attested under the keyword *433 to blow*.

435 rain (mvua)

1.	ngai	A	1-6, 8, 10
2a.	mbura	B	7, 9, 11-44, 98-105
2b.	mbua	B	45-97

Form A is a loan from Maasai (cf. *566 God*). The forms subsumed under B are related to CB *-bʊ́dá C.S. 225 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

436 to rain (-nyesha)

1a.	-u꞉ra	A_1	1-44c, 99-104
1b.	-ua	A_1	45-86, 88, 90-92, 95
2.	-ɦura	A_2	98
3.	-uwa	A_3	87, 89, 93, 94, 96, 97
3.	-raira	B	105

The two forms subsumed under are related to CB *-bʊ́d- p.s. 440 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba.

437 lightning (umeme)

1.	Rʊ.Pɛ꞉NI	A	1-44c, 98-105
2.	ʊ.tisi	B	45-97

Subsumed under A, the following forms are attested (* P_1): *rʊ.ɦɛ꞉ni* (Gikuyu, Ndia, Gichugu, Chuka, Meru, Tharaka) and *rʊ.vɛ꞉ni* (Embu, Mbeere).

438 thunder (ngurumo)

1.	NKWA	A	4-44, 73-75, 77-79, 81-84, 98-100
2.	ngərɔgɔrə	B	1-3

3.	ngalalıkı	C_1	53, 65, 87, 88, 90, 93, 95, 96
4.	kı.kalalıkı	C_2	68
5.	kalalıkı	C_3	91
6.	ngɔlɛkı	C_4	62, 66, 69-72, 76, 80, 86, 92, 94
7.	kı.tandalıkı	D	51, 52, 54, 61
8.	kı.tundumɔ	E	45-50, 55-60, 63, 64, 67, 89, 97
9.	ma.rurumı	F_1	101, 102, 105
10.	i.rurumı	F_2	103
11.	kU.uruma	F_3	104

In accordance with the correspondence series *NK_1, the following forms are subsumed under A: *nkwa* (Meru, Chuka, Tharaka) and *ngwa (*Embu, Mbeere Kamba, Western). The occurrence of /l/ suggests that the forms subsumed under C are loanwords in Kamba. In general, some of the forms above may be described as onomatopoetica.

440 land (nchi)

1a.	nðı	A_1	1-97
1b.	ðı	A_1	100, 104
2.	ɔðı	A_2	99
3.	mU.ɦiUnda	B_1	98, 101
4.	mU.gUnda	B_2	103
5.	tı:ri	C	98, 102
6.	bUrUri	D	105

All forms subsumed under A are connected to CB *-cí C.S. 330. The two forms subsumed under A_1 are treated as identical (*NC_2). Form B_2 is also attested under the keywords *209 garden* and *265 field*. Form C also occurs under the keywords *452 dust* and *455 soil*.

441 forest (msitu)

1.	mU.i:tU	A_1	1-16
2.	mU.ðitU	A_2	17-30, 40-44
3.	mU.titU	A_3	31-39, 45, 46, 52, 54, 98-105
4.	kı.titU	A_4	91, 92
5.	kı.ðaka	B_1	27, 28, 40-44, 47, 48, 50, 77-79, 81
6.	kı.ðɛka	B_2	51, 53, 55-76, 80, 83-97

Form A_2 is possibly borrowed from Swahili.

442 mountain (mlima)

1a.	kı.rıma	A_1	1-44c, 98-103, 105
1b.	kı.ıma	A_1	45-97
2.	i.rıma	A_2	104

All forms are related to CB *-dìmà C.S. 569. Both forms subsumed under A_1 are treated as identical (*R_1/_/a, ɛ, ɔ, U/ > /Ø/ in Kamba).

443 rock (jabali)

1a.	ı.ɦiga	A_1	1-16, 20, 22-28
1b.	i.ɦiga	A_1	98-100, 103, 105

1c.	ɪ.bia	A_1	45-72, 74-76, 78-81, 85-94, 96
2.	ɪ.ðiga	A_2	31-34
3a.	ma.ɦiga	A_3	101, 102
3b.	ma.biga	A_3	104
4.	ɪ.bi̯a	A_4	73, 77, 82-84, 95, 97
5.	rɄ.ara, rɄ.araga	B	17-19, 21, 29, 40-44
6.	rU.cia:ra	C	30, 33b, 35-39

All forms subsumed under A are related to CB *-pígà C.S. 1548. All forms subsumed under A_1 are treated as identical (*P_1 and *G/_/i/ > /Ø/ in Kamba; class 5 /ɪ-/ in the eastern Kirinyaga dialects corresponds regularly to class 5 /i-/ in Gikuyu, Ndia und Gichugu). The same holds for the forms subsumed under A_3 (*P_1). According to Möhlig (1974a: 169), this concept is generally rarely used by speakers of Central Kenya Bantu; thus, the relatively high diversity.

446 cave (pango)

1.	gɪ.kurungu	A_1	1-9
2.	ɪ.kurungu	A_2	10-44
3.	ngurunga	A_3	31-34, 98, 99, 101, 103, 105
4.	ngunga	A_4	45-96
5.	mU.kuru	A_5	102
6.	ɪ.kurunga	A_6	104
7.	ngungɔ	A_7	97
8.	ɦiga	B	100
9.	i.rima	C	105

The reasons for the relatively high diversity is unclear. The stem *-kuru-* describes a kind of cave that was used for dwelling in precolonial times and may be translated as 'grotto'. The stem is represented in the name Mukurueini, nowadays a village as well as transfer site between the towns of Nyeri and Murang'a, that is thought to be the original home area of the Gikuyu (Mukurue wa Gathanga). Form B also occurs under the keyword *443 rock*. Form C is also attested under the meaning *447 hole*.

447 hole (shimo)

1.	ɪ.riŋa	A_1	1-16, 40-44
2a.	ɪ.rima	A_2	17-39
2b.	ɪ.ima	A_2	45-69, 71-97
2c.	i.rima	A_2	98-105
3.	ɪ.rina	A_3	33c

The forms subsumed under A are treated as identical (*R_1/_/i/ > /Ø/ in Kamba; class 5 /ɪ-/ in the Eastern Kirinyaga dialects corresponds regularly to class 5 /i-/ in Gikuyu, Ndia, and Gichugu). They are possibly connected to CB *-dìm- C.S. 568, which is reflected as *-(r)ima* in *266 to cultivate* and *267 to dig a hole*. The relatively high diversity, according to Möhlig (1974a: 170) points towards borrowing.

448 water (maji)

1.	rU.Ujɪ	A_1	1-12, 40-44
2.	rU.:jɪ	A_2	13-25
3.	rU.njɪ	A_3	26-29a, 30
4a.	ma.njɪ	A_4	29b, 31-33, 35-39

4b.	ma.nzɪ	A_4	87, 94
5.	ma.nji	A_5	34a-c
6.	kɪ.^{g}wu	B	45-86, 88-93, 95-97
7.	maɪ	C	98-105

According to Möhlig (ibid.), the relatively high amount of diversity is probably due to borrowing, as little usage of this concept can safely be ruled out. However, the exact nature of the borrowing processes remains unclear. Both forms subsumed under A_4 are treated as identical (*NJ). There is a possible connection to the following keyword *449 river*.

449 river (mto)

1.	rʊnjɪ	A_1	31-39
2.	rʊ:jɪ	A_2	13, 20
3.	mʊ.ɦu:rɔ	B	1-12, 14-19, 21-30, 40-44
4.	ʊ.sɪ	C	45-97
5.	rʊ.Ui	D_1	98-101, 103
6.	rʊ.UI	D_2	102, 104, 105

The two forms subsumed under A are possibly related to CB *-yíjì C.S. 2000. The formal aberrancies, again, point towards borrowing processes, whose exact nature, however, is yet to be specified.

450 lake (ziwa)

1a.	ɪ.ria	A_1	1-44c
1b.	i.ria	A_1	98-105
1c.	ɪ.ia	A_1	45-47, 49, 50, 52-57, 59-64, 66, 67, 69-84, 86-88, 90, 91, 94-97
2.	yɪ.ia	A_2	48, 51, 58, 65, 85, 89, 92, 93
3.	yɪ.iya	A_3	68

All forms listed here are related to CB *-dị̀bà C.S. 603. The forms subsumed under A_1 are treated as identical (*R_1/_/ɪ/ > /Ø/ in Kamba; class 5 /ɪ-/ in the Eastern Kirinyaga dialects corresponds regularly to /i-/ im Gikuyu, Ndia, and Gichugu).

451 stone (jiwe)

1.	I.PIGA	A_1	1-30, 40-105
2.	ɪ.ðiga	A_2	29b, 31-39

Both forms seem to be connected to CB *-pị́gà C.S. 1548 (cf. *443 rock*). In accordance with the correspondence series *P_1 and *G/_/i/, the following three forms are subsumed under A_1 (class 5 /ɪ-/ corresponds /i-/ in Gikuyu): *i.ɦiga* (Nyeri, Kiambu, Murang'a, Mathira, Meru, Chuka, Tharaka), *i.βiga* (Ndia) and *ɪ.βia* (Kamba). The aberant shape of A_2, however, can not be explained.

452 dust (vumbi)

1.	tɪ:ri	A	1-16, 20, 27-29, 42
2.	rʊ.gʊnkʊ	B_1	9, 12, 30, 42
3.	rʊ.gʊngʊ	B_2	17-21, 27, 31-39, 98-105
4.	kɪ.kungu	B_3	53, 69, 70, 72, 73, 76-79, 81, 85, 88, 90-93, 96, 97
5.	ɪ.tu:rʊ	C	22-26
6.	tʊʊkʊ	D	40-44
7.	kɪ.tɔɔ	E	45-52, 54-68, 71, 74, 75, 80, 82-84, 86, 87, 89, 94, 95

Form A is also attested under the keyword *440 land*. The forms subsumed under B are related to CB *-kùngú C.S. 1230.

453 mud (tope)

1.	NTAKA	A	1-39, 46-58, 60-97, 105
2.	ndɔndɔ	B_1	40-44
3.	mʊ.tɔndɔ	B_2	45, 59, 102
4.	ndɔrɔ	C	98-101, 104

Form A is related to CB *-tàká C.S. 1649 and reflected as *ntaka* (Meru, Chuka) and *ndaka* (Embu, Mbeere, Kamba).

454 sand (mchanga)

1.	mʊ.ðanga	A_1	1-44c, 98-105
2.	kɪ.ðangaðɪ	A_2	46, 48-53, 55-61, 63-97
3.	mʊ.ðangaðɪ	A_3	45, 47, 54, 62

All forms are related to CB *-càngà C.S. 288 (cf. *455 soil*). The forms A_2 and A_3 are compounds of CB *-càngà C.S. 288 and CB *-cí 'land' CS 330.

455 soil (udongo)

1.	mʊ.ðɛtu	A	1-44c
2.	mʊ.ðanga	B	45-47, 49-54, 56-60, 62, 64, 66-69, 71-74, 77-84, 86, 91, 95-97
3.	tɪ:ri	C	98-101, 103-105
4.	mbɪʊ	D	102
5.	yʊmba	E	48, 55, 70, 75, 76, 87-89, 92-94
6.	ɪ.livɪ	D	61, 65

Form B, restricted to Kamba, is related to CB *-càngà CS 288 and also attested under the keyword *454 sand*. Form C, restricted to Gikuyu, Ndia, and Gichugu, is also attested under the keyword *440 land*.

456 path (njia)

1a.	njɪra	A_1	1-44c, 98, 99
1b.	nzɪa	A_1	45-76, 80, 82-86, 88-97
2a.	ka.sɪla	A_2	77, 78, 81, 87
2b.	ga.sɪra	A_2	102, 104, 105
2c.	ga.cɪra	A_2	101, 103
3.	ka.syɪla	A_3	77, 78, 81, 87
4.	mbacɪra	A_4	100

All of the forms are connected to CB *-jìdà C.S. 940. It is, however, rather likely that the forms A_2 and A_3 are loanwords, as the occurrence of /l/ indicates. Both forms subsumed under A_2 are treated as identical (*R_1/_/a, ɛ, ɔ, u/ > /Ø/ in Kamba), as are both forms subsumed under A_2 (*R_3).

457 road (barabara)

1a.	barabara	A	1-26, 31-44, 98, 102, 104
1b.	balabala	A	68, 71, 86, 95, 96
2.	mʊ.ɲɔrɔrɔ	B_1	1-9, 14
3.	mʊ.ɲɔ:ra	B_2	40, 42b
4.	mʊ.ɲɔɔrɔ	B_3	42a, 42c
5.	mʊ.rangɔ	C	15-18, 26-30

6.	lɛlʊ	D	45-61, 63-67, 70, 75, 76, 80, 85, 90, 92, 94, 96
7.	taalɪ	E	62, 69, 72-74, 77-79, 81-84, 87-89, 91, 93, 95, 97
8.	njɪra	F	99-101, 103, 105

Both forms subsumed under A are borrowed from Swahili and treated as identical (*R_3). Form C is also attested under the keyword *209 door*. The forms D and F are loans: D might go back to English *rail.* Form F is borrowed from Swahili *njira* and also occurs under the relevant keyword *456 path*. Form E is a loan of unknown origin.

458 place (mahali)

1.	gʊ.ʊntʊ	A_1	1-26, 42b, 43, 44
2.	BA.ANTʊ	A_2	7-21, 27-42a, 42c
3a.	βa.ndʊ	A_3	45-97
3b.	ɦa.ndʊ	A_3	101-105
4.	kʊ.ndʊ	A_4	98, 100

All forms go back to CB *-ntù 'person' C.S. 1798, used with different noun class markers. In accordance with the correspondence series *NT, the following forms are subsumed under A_2: *βa.antʊ* (Miutini, Igoji, Mwimbi, Chuka, Tharaka) and *va.andʊ* (Embu, Mbeere). The two forms subsumed under A_3 are treated as identical as class 16 /βa-/ (Kamba) corresponds to class 16 /ɦa-/ in Gikuyu (cf. dia-series *P_1).

459 village (kijiji)

1a.	ntʊːra	A_1	1-30, 40-44
1b.	ndʊa	A_1	49, 50, 52, 56, 60, 62, 64, 66, 72-74, 81
2a.	ɪ.tʊːra	A_2	31, 32, 34b, 35-39
2b.	i.tʊːra	A_2	102
2c.	ɪ.tʊa	A_2	48, 75, 80, 85
3.	ndaki	B	33, 34a, 34c
4a.	gɪ.cangi	C	98, 100, 101
4b.	gɪ.sangi	C	104, 105
5.	βirɛji	D	103
6.	ʊ.tʊi	E	45-47, 51, 53-55, 57-59, 61, 63, 65, 67-71, 76-79, 82-84, 86-96

All forms subsumed under A go back to the verb *-tʊːra* 'to settle' (Möhlig 1974a: 171). The forms subsumed under A_1 are treated as identical (*NT and *R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). Both forms subsumed under A_2 are treated as identical, as class 5 /i-/ in Gikuyu, Ndia and Gichugu corresponds to class 5 /ɪ-/ in the rest of Central Kenya Bantu. The two forms subsumed under C are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Ndia und Gichugu).

460 plant (mmea)

1a.	mʊ.mɛra	A	1-44c, 98-105
1b.	mʊ.mɛa	A	45-97

Both forms are related to CB *-mèd- 'to sprout' C.S. 1293 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/).

461 to sprout (-chipuka)

1a.	-mɛra	A	22-39, 98, 99, 101-103, 105
1b.	-mɛa	A	45-97
2.	-uːma	B	1-21, 30, 31, 40-44
3.	-kʊnɔka	C	100
4.	-ɦurunjuka	D	104

Both forms subsumed under A are related to CB *-mèd- C.S. 1293 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). Form B might be a metaphorical description of this concept: It also appears under the keyword *083 to come from* and is also attested with the meaning 'to finish' (Möhlig 1974a: 117).

462 tree (mti)

1.	mʊ.tɪ	A	1-105

All of Central Kenyan Bantu uses a form related to CB *-tí C.S. 1729.

463 root (mʒizi)

1a.	mʊ.ri	A_1	1, 3-16, 26-44, 99, 101-105
1b.	mʊ.i	A_1	45-97
2.	mʊ.rii	A_2	2, 17-25
3.	mʊ.rita	A_3	98, 100

All forms are related to CB *-dị̀ C.S. 591. Both forms subsumed under A_1 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

464 branch (tawi)

1.	rʊ.a:ŋi	A_1	1-15, 24, 25
2.	rʊ.ɔŋi	A_2	40-44
3.	rʊ.ɦi̯A	B_1	13, 16-24
4.	Rʊ.PɔA	B_2	26-39
5.	rʊ.ɦʊa	B_3	105
6a.	ʊ.bɔngɛ	C_1	45-97
6b.	rʊ.ɦɔngɛ	C_1	100, 102-104
7.	kɪ.ɦɔngɛ	C_2	101
8.	rʊ.ɦuaŋa	D	98
9.	mʊ.ritʊ	E	99

The reason for the relatively high diversity of the items above is unclear. In accordance with the dia-series *P_1, the following two forms are subsumed under B_2: *rʊ.ɦɔa* (Chuka) and *rʊ.vɔa* (Embu, Mbeere). Moreover, the two forms subsumed under C_1 are treated as identical (*P_1 and *R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

465 leaf (jani)

1.	ɪ.bʊ:ra	A	1-12
2.	ɪ.ðangʊ	B	7-11, 13-26, 31-44, 62, 69-98, 100, 101, 104, 105
3.	ɪ.tʊ	C	23, 27-30, 45-61, 63-68
4.	i.ɦuti	D	102, 103

466 thorn (mwiba)

1.	mʊ.i:gwa	A_1	1-26, 98
2.	mʊ.ɪ:gwa	A_2	27-39
3.	mʊ.ɪ:gua	A_3	40-44
4.	mʊ.ɪᵍwa	A_4	45-97
5.	mʊ.i:gua	A_5	99-105

All forms might be connected to CB *-yígà C.S. 1997. There is a phonological split between the (1.) dialects on the north-eastern slopes of Mt. Kenya, (2.) Chuka, Embu, and Mbeere, (3.) Tharaka, (4.) Kamba, and (5.) the western dialects of Gikuyu, Ndia, and Gichugu in regard to this item.

467 fruit (tunda)

1a	ɪ.tunda	A	1-97
1b.	i.tunda	A	98-105

Both forms are treated as identical, as class 5 /i-/ in Gikuyu, Ndia, and Gichugu corresponds regularly to class 5 /ɪ-/ in the rest of Central Kenyan Bantu.

468 unripe (-bichi)

1.	-bɪðɪ	A_1	1-44c
2.	-ɪðɪ	A_2	45-97
3.	-ɪðɪɲa	A_3	98
4.	-riðɪ	A_4	100, 102
5.	-iðɪ	A_5	101, 103
6.	-ðɪ	A_6	105
7.	njiri	B	99

All forms subsumed under A are connected to CB *-bícì C.S. 102; only A_2, however, seems to be regularly derived. Borrowing of most of these forms can, therefore, not be ruled out. In the case of A_1, Swahili seems to be the donor.

469 to ripen (-iva)

1.	-gunda, -bunda	A	1-30, 32a
2.	-tuːnɪba	B	31-34
3a.	-ɪːrua	C_1	35-39, 98-103
3b.	-ɪua	C_1	45-97
4.	-iːrɻa	C_2	40-44
6.	-ɪrugiðia	C_3	105

Both forms subsumed under C_1 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). According to Möhlig (1974a: 173), form B is derived from the word *-tuːnɛ* in *591 red*. The form *-gunda* is possibly connected to the meaning *209 garden*.

470 to be rotten (-oza)

1.	-ɔːra	A	1-44c, 102-105
2.	-ɔa	A	45-97
3.	-βuða	B	98, 99, 101
4.	-ðʊka	C	100

Both forms subsumed under A are related to CB *-bòd- C.S. 153 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

472 grass (nyasi)

1.	ɲaki	A_1	1-44c
2.	ɲɛki	A_2	45-105

473 pumpkin (boga)

1.	kɪ.rɛngɛ	A_1	1-16, 20
2a.	ɪ.rɛngɛ	A_2	17-26, 31-44
2b.	ɪ.lɛngɛ	A_2	45-97
2c.	i.rɛngɛ	A_2	101, 102

3.	mʊ.rɛngɛ	A_3	27-30, 98-100, 103, 105
4.	mbɔga	B	104

All forms subsumed under A are connected to CB *-dèngè C.S. 543. The forms subsumed under A_2 are treated as identical (*R_3; class 5 /i-/ in Kiambu and Murang'a correspond regularly to class 5 /ɪ-/ in the rest of Central Kenya Bantu). The Kamba form *ɪ.lɛngɛ* is a loan, borrowed from the languages in the vicinity of Mt. Kenya. Form B is an isolated loan from Swahili. Form A_3 is used in Gikuyu school literature (Wanjaũ 1989: 23)

474 number (hesabu, nambari)

1.	namba	A	1-5, 10-13, 15-25, 27-39, 40, 42a, 45-89, 100-103
2.	ntari	B	6, 9
3a.	ntɛmwa	C	7, 8, 14, 26, 40-44
3b.	ndɛmwa	C	104
4.	ʊ.talɔ	D	90, 94
5.	ɪ.savu	E	91

Form A is a loan that is borrowed from English. The forms subsumed under C are treated as identical (*NT). Form D, restricted to two locations in southern Kitui-Kamba, is a loan of unknown origin.

475 many (-ingi)

1.	-ingɪ	A	1-105

All of Central Kenyan Bantu uses the same form related to CB *-yi̧ngì C.S. 2082.

476 crowd (kundi la watu)

1a.	gɪ.kundi	A_1	1-16, 20, 25-39, 42b, 44a, 102
1b.	kɪ.kundi	A_1	45, 47, 56, 57, 61, 67, 69, 81, 87, 89
2.	kundi	A_2	46, 48
3.	ntundu	B_1	3, 4, 7, 13, 15, 17-24, 40-44
4.	kɪ.tundu kia andʊ	B_2	101
5.	nguðu	C	49, 51, 53, 55, 58, 59, 62-66, 71-73, 77, 78, 79, 82-84, 86, 93-95
6.	ɪ.kɔmanɔ	D	50, 70, 76, 88, 96
7.	ʊ.mbanɔ	E	52, 74, 75, 80, 90, 92
8.	andʊ aingɪ	F_1	98, 99, 105
9.	ɪangɪ	F_2	97
10.	wingɪ	F_3	68
11.	mʊ.ingi	F_4	103
12.	mʊ.ngɪkɪ	G	100
13.	mbaɪ	H	54

Both forms subsumed under A_1 are treated as identical (*K_3; Dahl's Law inactive in Kamba). They are widespread in Central Kenya Bantu and similar to the relevant Swahili word. The forms subsumed under F are connected to the meaning *475 many*. In Kamba, form C prevails. It is used in school literature (TLY Kamba Course Book 1: 29).

477 few (-chache)

1.	-kai	A	1-16
2.	-niːni	B	17-105

Form B is related to CB *-nɟ̩nɟ̩ 'small' C.S. 1362 and prevailing in Central Kenya Bantu. North-Imenti, Nkubu, Miutini, and Igoji use an unrelated form.

478 alone (peke)

1.	-NKA	A_1	1-34, 40-44
2.	-ːka	A_2	35-39, 102
3.	wɛka	A_3	45-97
4.	-iki	B_1	98-101
5.	-ikɛ	B_2	103
6.	-mwɛ	C	104, 105

Subsumed under A_1, the following forms are attested: *-nka* (Meru, Chuka, Tharaka) and *-nga* (Embu).

479 all (-ote)

1.	-ɔndɛ	A_1	1-44c
2.	-ɔnðɛ	A_2	45, 48, 50-57, 59-82, 84, 86-89, 91-94, 96
3.	-ɔðɛ	A_3	46, 47, 49, 58, 83, 98-105
4.	-ɔnzɛ	A_4	85, 90, 95, 97

All forms are connected to CB *-yóncè C.S. 2123. Form A_3 seems to be genuine to the western dialects of Gikuyu, Ndia, and Gichugu, from where it was borrowed by a few locations in Masaku-Kamba. Form A_4 is possibly also a loan. The prevailing Kamba form is A_2, which is used in school literature (TLY Kamba Reader 2: 8).

481 to count (-hesabu)

1a.	-tara	A	1-44c, 98-105
1b.	-tala	A	45-97

Both forms go back to CB *-tád- C.S. 1639 and are treated as identical (*R_3). The Kamba form *-tala* is, however, borrowed from the languages in the vicinity of Mt. Kenya, as the occurrence of /l/ indicates.

482 one (mmoja)

1.	-mwɛ	A	1-105

All of Central Kenyan Bantu uses the same form related to CB *-múé C.S. 1326.

483 two (mbili)

1.	-ɪrɪ	A_1	1-44c
2.	-lɪ	A_2	45-97
3.	-gɪrɪ	A_3	98-105

All three forms are connected to CB *-bìdì C.S. 114. The Kamba form *-lɪ* is probably borrowed from the languages in the vicinity of Mt. Kenya. The form *-gɪrɪ* of Gikuyu, Ndia, and Gichugu is to be considered irregular.

484 three (tatu)

1.	-ðatU	A_1	1-44c, 98, 100-105
2.	-tatU	A_2	45-97, 99

Both forms go back to CB *-tátù C.S. 1689.

485 four (nne)

1.	-na, -ɲa	A	1-105

All of Central Kenyan Bantu uses forms related to CB *-nà C.S. 1335.

486 five (tano)

1.	-taːnɔ, i.ðaːnɔ	A_1	1-44c, 102, 104, 105
2.	i.taːnɔ	A_2	45-97
3.	i.ðanɔ	A_3	98-101, 103

All of Central Kenyan Bantu uses forms related to CB *-táánò C.S. 1662.

487 six (sita)

1.	-tantatU, i.ðanðatU	A_1	1-6, 10-16,
2.	-tanðatU, i.ðanðatU	A_2	7-9, 17-44
3.	-ðanðatU	A_3	45-85, 87-89, 92, 93, 95, 96, 102, 104, 105
4.	-ðatatU	A_4	99-101, 103
5.	-ðanzatU	A_5	86, 90, 91, 94

All forms are connected to CB *-tándàtú C.S. 1667. The relatively high diversity is due to borrowing. Especially form A_5, attested in four locations of Kamba, seems to be irregular and indicates borrowing.

488 seven (saba)

1.	mU.gwanja	A	1-44c, 98-105
2.	mU.ɔnza	B	45-97

Form B might be a loan in Kamba, which was borrowed from the other languages of Central Kenya Bantu.

489 eight (nane)

1.	-naana, i.ɲaaɲa	A_1	1-21, 40-44
2.	-naːna, i.ɲaɲa	A_2	22-39, 45-105

490 nine (tisa)

1.	kɛnda	A	1-105

All of Central Kenya Bantu uses the same form related to CB *-kèndá C.S. 1093.

501 twenty (ishirini)

1a.	mɪ.rɔngɔ ɪ.ɪri	A	1-44c, 98, 99, 101-105
1b.	mɪ.ɔngɔ ɪ.ɪli	A	45-97
2.	mbaɔni	B	100

The two forms subsumed under A are treated as identical ($*R_3$). They are compounds of a reflex of CB *-dòngò 'ten' C.S. 663 and the relevant form in *483 two*. The Kamba form *ɪ.ɪli* is a probable loan, as the occurrence of /l/ indicates. The origin of the isolated form B is unclear.

510 one hundred (mia)

1a.	ɪ.gana	A_1	1-44c
1b.	i.gana	A_1	100, 102, 105
1c.	ɪ.ana	A_1	45-97
2.	i.gana rɪmwɛ	A_2	98, 99, 101, 103, 104

All forms are related to CB *-gànà C.S. 774. The forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, U/ > /Ø/ in Kamba; class 5 /i-/ in Nyeri, Murang'a, and Gichugu corresponds regularly to class 5 /ɪ-/ in the rest of Central Kenyan Bantu). Form A_2 is a direct translation of the English keyword.

511 to measure (-pima)

1.	-ðima	A	1-105

512 weight (uzito)

1a.	ʊ.ritɔ	A_1	1-44c
1b.	ʊ.itɔ	A_1	45-52, 55-75, 77-86, 88-90, 92, 94, 96
2.	ʊ.ritʊ	A_2	98, 100, 101, 103-105
3.	ʊ.litu	A_3	53, 54, 76, 87, 91, 93, 95
4.	ʊ.lɛtu	A_4	97
5.	ʊ.rimʊ	B	99
6.	ʊ.gʊðima	C	102

All forms subsumed under A are related to CB *-dị̀tò C.S. 631. The forms subsumed under A_1 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). The forms A_3 and A_4, showing limited distribution in Kamba, are borrowed from the languages in the vicinity of Mt. Kenya, as the occurrence of /l/ indicates.

513 boundary (mpaka)

1.	mʊ.anka	A_1	1-16, 40-44
2.	mʊ.PA:KA	A_2	17-39, 98-105
3.	mʊ.baka	A_3	45-97

All forms are connected to CB *-pàká C.S. 1419. Only A_2 and A_3 show, however, regular correspondences to the CB form. Under A_2, the following forms are subsumed (*P_1): *mʊ.ɦa:ka* (Gikuyu, Mwimbi, Muthambi, Chuka) and *mʊ.va:ka* (Embu, Mbeere), and *mu.βa:ka* (Ndia, Gichugu).

514 line (mstari)

1.	mʊ.sta:ri	A_1	1-16, 20, 25, 26, 32a, 33a, 40-44
2.	mʊ.sitali	A_2	45, 50-55, 57, 59-61, 63, 67-69, 71-75, 77-80, 82, 84-89, 91, 92, 93, 96, 97
3.	mʊ.ʃitali	A_3	62
4.	mʊ.PA:RI	B_1	17-24, 27-40
5.	mʊ.ɦari	B_2	99
6.	mʊ.kululɔ	C_1	65, 66, 81, 83, 94, 95
7.	mʊ.kululyɔ	C_2	87, 90
8.	mʊ.ðɪa	D	70, 76
9.	mʊ.sɔa	E	64
10a.	laini	F_1	46, 47, 48, 56, 58
10b.	raini	F_1	100, 101, 103, 105
11.	mʊ.raini	F_2	98, 104
12.	mʊ.kaɔ	G	49
13.	mʊ.karara	H	102

All forms subsumed under A are borrowed from Swahili. Subsumed under B_1, the following forms are attested (*P_1): *mʊ.ɦa:ri* (Mwimbi, Muthambi, Chuka, 40 Tharaka) and *mʊ.va:ri* (Embu, Mbeere). As the occurrence of /l/ indicates, both forms subsumed under C are loans in Kamba (of unknown origin). Form D also occurs under the keyword *521 end*. All forms subsumed under F are English loanwords. The two forms subsumed under F_1 are treated as identical (*R_3). The relatively high diversity is probably due to little usage of this concept.

515 far (mbali)

1.	-RA:JA	A_1	1-44c
2a.	-asa	A_2	45-97

2b.	-raya	A_2	103, 104
4.	-rayu	A_3	99, 101
5.	-raiɦu	A_4	98, 102
6.	-nɛnɛ	B	100
7.	mwɪa	C	105

The following forms are subsumed under A_1 ($*J_1$) : *-raːʃa* (Embu, Mbeere, Chuka, W-Tharaka), *-raːdʒa* (Mwimbi, Muthambi), *-raːʒa* (N-Imenti, Nkubu, Igoji), *-raːʐa* (Miutini), and *-raːʈʃa* (E-Tharaka). The two forms subsumed under A_2 are treated as identical ($*J_1$ and $*R_3$). Form B also occurs under the keyword *574 big*. The relatively high diversity of the items subsumed under A indicates borrowing. The center of dispersal of these forms might be the languages on the southern and eastern slopes of Mt. Kenya.

516 near / short (karibu / -fupi)

1.	A.KUPɪ, GU.KUPɪ	A_1	1-44c, 98
2a.	βa.kuβɪ	A_2	45-97
2b.	ɦa.kuɦɪ	A_2	99-105

All forms are related to CB *-kʉ́pí C.S. 1274. The following forms are subsumed under A_1 ($*P_1$): *gU.kuvɪ* (Embu, Mbeere) and *gU.kuɦɪ* (Chuka, Meru, Tharaka, Nyeri). Both forms subsumed under A_2 are treated as identical, as class 16 /βa-/ in Kamba corresponds regularly to class 16 /ɦa-/ in Gikuyu.

517 different (tofauti)

1.	mU.aɲa	A	1-6, 9, 12, 20, 26, 27, 40-44
2.	mU.kU:rani, nkU:rani	B_1	7, 8, 10, 11, 13-25, 28-30, 35-44
3.	ngU:rani	B_2	31-34, 102, 104, 105
5.	kɪ.baðUkaniɔ	C_1	54, 55, 56, 59, 80, 87, 90, 92, 93
6.	kɪ.baðUkaɲi̯ɔ	C_2	53, 61-73, 75-78, 81-86, 88, 89, 91, 94-96
7.	-baðUkanu	C_3	45, 48-52, 57, 58, 60
8.	-tinganU	D_1	98, 100
9.	-tigaɪnɛ	D_2	99, 103
10.	-taɦuanainɛ	E	101

518 other (-ingine)

1.	-ngɪ	A	1-105

All of Central Kenyan Bantu uses the same form related to CB *-ngí C.S. 810.

520 sign (alama)

1.	rU.aːnɔ	A_1	1-16, 22-29, 40-44
2.	U.banɔ	A_2	45, 47, 48, 51-57, 59-61, 63-65, 73, 74, 76-82, 85, 87-91, 94-96, 98
3.	rU:ri	B	7-12, 17-21, 30-39, 98, 101, 105
4a.	arama	C	13, 20, 100, 102-104
4b.	alama	C	50, 58, 66-71, 83, 84, 92, 93, 97
5.	saaɪi	D	49, 62, 72, 75, 86

Both forms subsumed under C originate from Swahili and are treated as identical ($*R_3$). Form D probably goes back to the English keyword.

521 end (mwisho)

1.	mʊ.ðia	A_1	1-32, 35, 36, 38b, 40-44, 45-47, 50, 52, 54, 57, 59, 60, 66, 71, 73, 94
2.	mʊ.ði̯a	A_2	48, 61, 63, 65, 69, 87, 92, 93, 95
3.	mʊ.iːcɔ	B_1	11, 20, 21, 24, 30-39
4a.	mw.isɔ	B_2	58, 74, 83, 97
4b.	mw.icɔ	B_2	99
5.	mw.iʃɔ	B_3	68, 70, 75, 76, 87, 90
6a.	mʊ.icɔ	B_4	98, 100, 101, 103
6b.	mʊ.isɔ	B_4	102, 104, 105
6.	mʊ.ðɛ(lɛ)lɔ	C	64
7.	mʊ.minʊkɪliɔ	D_1	49, 51, 55, 67
8.	mʊ.minʊkɪlyɔ	D_2	56, 62, 72, 77-82, 84-86, 88, 89, 91, 96
9.	mʊ.miniɔ	D_3	53

All forms subsumed under B are borrowed from Swahili. The forms subsumed under B_2 and B_4 respectively are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/). The isolated form C might go back to the forms subsumed under A. All forms subsumed under D are loans of unknown origin.

522 time (wakati)

1.	ɪ.giːta, ka.giːta	A	1-26, 40-44
2.	ɪ.binda, ka.binda	B_1	31-39
3a.	ɪ.binda	B_2	27-30, 45-97
3b.	i.ɦinda	B_2	98, 100, 102
4.	ma.ɦinda	B_3	99
5.	ðaa	C_1	101, 105
6.	ma.ðaa	C_2	103, 104

All forms subsumed under B are connected to CB *-píndí C.S. 1572, however, mostly irregularly. The two forms subsumed under B_2 are treated as identical (*P_1 and class 5 /i-/ in Gikuyu corresponds to class 5 /ɪ-/ in Kamba). The widespread usage of *ka.binda* next to *ɪ.binda* in Embu is probably due to vernacular teaching (TLY Embu 1: 31).

523 year (mwaka)

1.	mʊ.aːka	A_1	1-6, 17-39
2.	mʊ.anka	A_2	7-16, 40-44
3.	mw.aka	A_3	45-101, 103
4.	mʊ.aka	A_4	102, 104, 105

The relevent Common Bantu item is *-yàkà C.S. 1904. Form A_2, restricted to Miutini, Igoji, and Tharaka, is not regularly related to Common Bantu, all other items are regular.

524 week (juma)

1.	ki.uːmia	A_1	1-16, 22-44
2.	ki.uːmi̯a	A_2	17-21
3.	ky.umwa	A_3	45-97
4.	ki.umia	A_4	98, 99, 101, 103, 105
5.	wiki	B	100, 102, 104

According to Möhlig (1974a: 177), all items subsumed under A are derived from the verb *-u:ma* 'to finish'. Möhlig, moreover, states that the forms A_1, A_2, and A_3 are possibly all borrowed from the Gikuyu form A_4. This could explain the relatively high diversity. Form B is borrowed from English.

525 day (siku)

1.	mʊ.ðɛŋa	A	31-40, 47, 50-52, 56-58, 61-63, 66-68, 70, 72, 73-91, 93, 95, 97-105
2.	ntukʊ	B_1	1-30
3.	ntugu	B_2	40-44
4.	ɪ.tukʊ	B_3	45, 46, 48, 49, 53-55, 59, 60, 64, 65, 69, 71, 92, 94, 96
5.	ðikʊ	C	98

All forms subsumed under B are related to CB *-tʉ́kù C.S. 1864. Form C is an isolated loan from Swahili.

526 daytime (mchana)

1.	mʊ.ðɛŋa	A	1-98, 100-105
2.	mʊ.ðaa	B	99

Form A is the word genuine to Central Kenyan Bantu also occurring under the keyword *525 day*. Form B is an isolated Swahili loan with the meaning 'time'.

527 night (usiku)

1.	ʊ.tukʊ	A_1	1-39, 45-105
2.	ʊ.tugu	A_2	40-44

528 morning (asubuhi)

1.	rʊ:kɪ:rɪ	A	1-26, 40-44
2.	kɪ.raʊkɔ	B_1	27-39
3a.	kɪ.rɔkɔ	B_2	98-100, 103
3b.	kɪ.ɔkɔ	B_2	46, 51, 54, 55, 57, 59-61, 64-66, 68-97
4.	kɪ.rɔ:kɔ	B_3	102, 104
5a.	rʊ.cinɪ	C	101
5b.	rʊ.sinɪ	C	105
6.	kw.atʃa	D	45, 47-50, 52, 53, 56, 58, 62, 63, 67

The two forms subsumed under B_2 are treated as identical ($*R_1$), as are the two forms subsumed under C ($*C_1$/_/i, u/).

529 evening (jioni)

1.	ʊ.gɔrɔ	A_1	1-16, 40-44
2.	kɪ.ʊ.gɔrɔ	A_2	17-26
3.	w.ɪɔɔ	A_3	45, 47-50, 52-61, 64, 66-71, 73-84, 87-91, 93, 95-97
4.	w.yɪɔɔ	A_4	46, 51, 62, 63, 65, 72, 85, 86, 92, 94
5.	nabɔɪ, kɪ.bɔ:ɪ	B	27-40
6a.	ɦwaɪ-ɪnɪ	C	98, 100, 102, 103, 105
6b.	βwaɪ-ɪnɪ	C	104
7.	rʊ.cinɪ	D	101
8.	gʊ.aɦiɲu	E	99

All forms subsumed under A are related to CB *-gòdò C.S. 842. The two forms subsumed under C are treated as identical ($*P_1$). Form D also appears under the keyword *528 morning*.

530 today (leo)

1.	naa:rua	A	1-16
2.	ʊ.mʊnðɪ	B	17-65, 67-68, 70, 71, 75, 76, 80, 82, 85, 87, 88, 92, 94, 98-105
3.	sʊɔɔ	C	66, 69, 73, 74, 77-79, 81, 83, 84, 89-91, 93, 95-97
4.	mʊ.ðɛŋa ʊʊ	D	72, 86

The widespread usage of form B in Kamba is possibly due to vernacular teaching (TLY Kamba 1: 34). Form D also appears under the keyword *526 daytime* and literally means 'this day'.

531 tomorrow (kesho)

1.	rʊʊjʊ	A_1	1-16
2.	rʊʊ	A_2	17-25
3.	rʊ.ʊyʊ, rʊ:yʊ	A_3	26-39
4.	rʊ.uyu	A_4	40-44
5.	ʊnɪ	B	45-97
6a.	rʊ.ciʊ	C	98, 103
6b.	rʊ.siʊ	C	102, 104, 105

Both forms subsumed under C are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia, and Gichugu). The relatively high diversity of the items above may indicate borrowing (Möhlig 1974a: 179).

532 yesterday (jana)

1a.	ɪ.gɔrɔ	A_1	1-44c
1b.	ɪ.ɔɔ	A_1	45, 55, 64, 66-69, 71, 74-76, 80, 82-84, 88, 95-97
2.	ɪ.yɔɔ	A_2	46-54, 56-63, 65, 70, 72, 73, 77-79, 81, 85-87, 89-94
3.	i.ra	B	98-105

All forms subsumed under A are related to CB *-gòdò C.S. 842. Both forms subsumed under A_1 are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ and *R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). Form B seems to be genuine only to Gikuyu, Ndia, and Gichugu.

533 the past (kale)

1.	kɛŋa	A	1-12
2.	tɛnɛ	B	3, 7, 9, 15, 16b, 17-98, 100-102, 104
3.	ka.ra:ja	C	13, 14, 16a, 40-44
4.	iyɔ	D	105

According to Möhlig (1974a: 178), form A is a loan from Maasai. The stem of form C also occurs under the keyword *515 far, long*.

534 anger (hasira)

1.	mʊ.ðʊ:rɔ	A	1-30, 40-44
2.	ma.ra:kara	B_1	31-39
3.	ma.rakara	B_2	98-103, 105
4.	kʊ.rakara	B_3	104
5.	w.ɔɔ	C	45, 46, 48, 49, 51-55, 57, 58, 60, 61, 64, 65-67
6.	ʊ.ðatu	D_1	50, 68, 78, 79, 87-93, 95
7.	ʊ.ðatɔ	D_2	77, 80, 81
8.	nzaa	E	47, 74, 83

9.	nzika	F	62, 63, 69, 70-73, 76, 82, 84-86, 94, 96
10.	ɻiya	G	56

The relatively high diversity of the items above is due to different concepts. The forms A and B are derivations of the relevant verbs for *535 to be angry*, the former also appears under the keywords *381 hunger* and *536 to hate* (as does form E). Form C denotes the notion of 'grief'.

535 to be angry (-kasirika)

1.	-ðʊːra	A	1-30, 40-44
2.	-raːkara	B_1	31-39
3.	-rakara	B_2	98-105
4.	-iᵍwa wɔɔ	C	45-49, 51, 52, 54-57, 60-63, 66, 67, 71-73
5.	-ðata	D	50, 53, 59, 64, 65, 70, 75-97

536 to hate (-chukia)

1.	-mɛna	A	1-97, 99-101, 103, 104
2.	-ðʊra	B_1	98
3.	-ðʊːra	B_2	102, 105

Form A is related to CB *-mén- p.s. 339. Form B_2 also occurs under the keywords *381 hunger* and *535 to be angry*.

537 mercy (rehema)

1.	kɪaːɔ	A	1-30, 40-44
2.	nðaa	B_1	31-39
3.	ða	B_2	98-100, 102-105
4.	tɛi	C	45-48, 50-61, 63-67, 69-82, 84, 85, 87-96
5.	ɪnɛɛ	D	49, 62, 68, 83, 86

Form A also occurs with the meaning *543 sorrow*. Form C is also attested with the meanings *543 sorrow* and *544 pain*.

539 to be astonished (-staajabu)

1.	-rigara	A	3-26, 40-44
2.	-maka	B	1-39, 98-105
3.	-sɛŋ(w)a	C_1	45, 47-49, 51-57, 59-97
4.	-sɪŋ(w)a	C_2	46, 50, 58

542 shame (aibu)

1.	nðaʊ	A	1-6, 13
2.	nðɔni	B_1	7-44, 48, 49, 54, 59, 61, 62, 64-67, 71-73, 82, 84, 86, 88, 92, 94
3.	ðɔni	B_2	45-47, 50-53, 55, 57, 58, 60, 98-105
4.	nzɔni	B_3	63, 69, 70, 74-81, 83, 87, 89, 90, 91, 95-97
5.	aibu	C	56, 68, 93

All forms subsumed under B go back to CB *-cónɻ C.S. 380. Form B_3 is, however, irregular and probably borrowed into Kamba from the eastern slopes of Mt. Kenya Form C, restricted to three locations in Kamba, is borrowed from Swahili.

543 sorrow (huzuni)

1.	kɪ.aːɔ	A	13-16, 44a
2.	kᴜ.iðikɪːra, ᴜ.iðikɪːri	B	1-12, 20, 23-25
3.	kɪ.ɛːa	C_1	17-21
4.	kɪ.ɛba:	C_2	31-39
5.	kɪ.ɛːba	C_3	40-44
6.	ky.ɛba	C_4	45, 47, 48, 55, 60, 61, 62, 66, 69, 71, 73, 77-79, 81, 84, 85, 86, 89
7.	kɪ.ɛɦa	C_5	98, 100-102, 104
8.	kɪ.makɔ	D	15, 22, 26-30, 51, 52, 53, 57, 60, 65, 68, 70, 80, 81, 87, 88, 90, 95
9.	w.ɔɔ	E	58, 59, 64, 67, 72, 87, 89, 94
10.	kɪ.ðikii	F	91
11.	tɛi	G	49, 50
12.	-ðɪna	H	56
13.	ða	I	99, 103
14.	ma.rakara	J	105
15.	-tɛlɛma	K	46
16.	ɪ.nɛɛ	L	63, 75, 82, 85, 92, 96

The relatively high diversity of the items above is partially due to the use of different concepts. The forms A, G, L, and I are also attested as *537 mercy*. Form D has the meaning 'shock, scare' (Möhlig 1974a: 179). Form E is also attested under the keywords *534 anger* and *544 pain*. Form K, as the occurrence of /l/ and its restricted distribution suggest, is a loan in one location of Masaku-Kamba.

544 pain (maumivu)

1.	mᴜ.rimᴜ	A	1-6
2.	ᴜ.rᴜrᴜ	B	7-44
3.	w.ɔɔ	C	45, 47, 48, 51-53, 56, 57, 60, 62, 63, 66, 71, 72, 74, 77-84, 86-88, 91-93, 95-97
4.	ky.alya	D_1	50, 54, 58, 59, 61, 64, 65, 67, 68, 69, 75, 76, 94
5.	ky.alᵍwa	D_2	49, 55
6.	ky.alʸwa	D_3	70, 89, 90
7.	ma.ᴜ.lɛɛlu 'slackness'	E	85
8.	ruɔ	F_1	98, 100-104
9.	gᴜ.ruɔ	F_2	99
10.	gᴜ.tuːruɔ	F_3	105

The stem of form A is also attested under the keyword *063 sickness*. Form C seems to be the genuine Kamba word for *pain*. It is, moreover, attested under the keywords *534 anger* and *543 sorrow*. The forms subsumed under D seem to be loanwords in Kamba. The same holds for the isolated form E.

545 joy (furaha)

1.	kᴜ.gwɪrwa	A	1-12, 44a
2.	gɪ.kɛnɔ	B_1	12-44, 98, 100-103, 105
3.	nkɛna	B_2	24, 25
4.	i.kɛna	B_3	99
5.	gᴜ.kɛna	B_4	104

6.	ʊ.tanu	C_1	46, 48-50, 52-57, 59, 61-74, 76-86, 88-91, 93-97
7.	kʊ.tana	C_2	87, 92
7.	mʊ.yɔ	D	45, 51, 58, 60, 75

All forms subsumed under B are metaphorical descriptions of the concept of joy. They are connected to the meaning *427 to shine* and also occur under the keyword *546 to be proud* in Murang'a and Gichugu.

546 to be proud (-enye fahari)

1.	-ɪkumi̱a	A_1	1-16, 18
2.	-ɪʊkumia	A_2	24, 40-44
3.	-ɪða	B	17-21
4.	-ɪtɪːa	C_1	20, 22-39
5.	-ɪtɪa	C_2	98-101, 103
6.	-ɪyɔna	E_1	45, 47-52, 54, 55, 57-59, 61, 62, 64, 65, 72, 77-79, 86, 92
7.	m.ɪyɔnɔ	E_2	56, 67, 85
8.	-kɛna	F	102, 105
9.	ngʊlʊ	G_1	46, 53, 60, 70, 71, 73, 76, 88, 91
10.	ngəlʊ	G_2	75, 86
12.	(m)ʊ.ŋɛndu	H_1	63, 68, 69, 74, 80, 81, 83, 84, 87, 89, 93, 96
13.	kʊ.ŋɛnda	H_2	66, 82, 90, 95

According to Möhlig (1974a: 180), the forms A, B, and C are reflexive derivations of verbs that originally denote concepts such as 'to flatter' or 'to praise'. Form F is also attested under the keyword *545 joy* and literally means *427 to shine*. The occurrence of /l/ and the limited distribution of the forms subsumed under G, suggest that they are borrowed. They also seem to be connected to the meaning 'high'.

547 fatigue (uchovu)

1.	mʊ.nɔga, mɪ.nɔga	A_1	1-44c
2a.	mɪ.nɔa	A_2	62
2b.	mɪ.nɔga	A_2	101-103
3.	mɪ.nɔɔ	A_3	47, 49-51, 53-55, 57-60, 63, 66, 65, 69, 71-73, 82, 84, 86, 92
4.	ʊ.nɔu	A_4	48, 52, 61, 77-79, 93
5a.	-nɔga	A_5	99, 100
5b.	-nɔa	A_5	45, 46, 56, 64, 67, 70, 74-76, 80, 83, 87, 88-90, 95-97
6.	-nɔgɪrɪra	A_6	98
7.	waanu	B	81, 94
8.	ʊ.lɛɛlu	C	85

All forms subsumed under A are related to the keyword *055 to be tired*. They seem to originate from a Common Central Kenya Bantu Stratum. During the elicitations, informants would either provide a noun or a verb to express this item. The forms subsumed under A_2 and A_5 respectively are treated as identical (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). Form C is an isolated loan in Kamba.

548 smell (harufu)

1.	mʊ.rukɪ	A_1	1-16, 40-44, 98, 100, 102
2.	mʊ.rukɛ	A_2	17-39, 101
3.	mʊ.ʊkɛ	A_3	48, 49, 53, 61-64, 66, 67, 69-73, 75-77, 80-82, 84-91, 93-96
4.	mʊ.ʊki	A_4	45, 47, 51, 54, 55, 57, 92

5.	mʊ.ʊkia	A_5	56
6.	kɪ.rʊmba	B	40-44
7.	mʊ.ɲungɔ	C_1	55, 59, 60, 65
8.	mʊ.nungɔ	C_2	50, 52, 58, 68, 103
9.	ʊ.ɲungu	C_3	78, 79
10.	ʊ.ɲunga	C_4	74, 83
11.	-nunga	C_5	46
12.	-nungɪrɛ	C_6	99
13.	kʊ.nuka	D	97

All forms subsumed under C are connected to CB *-nu̱nk- 'to smell, stink' C.S. 1386. Form A seems to originate from CB *-nu̱u̱k- C.S. 1380 'to smell'. The reason for the high diversity is unclear. Possibly, this item is generally taboo in the relevant languages and, therefore, scarcely used.

549 to stink (-nuka)

1.	-NUNKA	A_1	1-44c, 46, 49, 50, 58, 77, 79, 92, 98-105
2.	-ɲunga	A_2	45, 48, 53, 54, 57, 59-67, 69, 71-73, 75, 76, 78, 80-91, 93-96
3.	-ɲungia	A_3	70, 74
4.	-nuka	B	47, 51, 97
5.	-ɲɛwa	C	56

All forms subsumed under A are related to CB *-nu̱nk- C.S. 1386. Form B possibly goes back to CB *-nu̱u̱k- C.S. 1380 with the same meaning. It may, however, be borrowed from Swahili. According to the correspondence series *NK_1, the following forms are subsumed under A_1: *-nunka* (Chuka, Meru, Tharaka) and *-nunga* (Embu, Mbeere, Kamba, Gikuyu).

550 to remember (-kumbuka)

1.	-riikana	A_1	1-6, 98
2a.	-ririkana	A_2	7-44, 99-105
2b.	-lilikana	A_2	45-97

Both forms subsumed under A_2 are treated as identical (*R_3). The occurrence of /l/ indicates that the Kamba form *-lilikana* is borrowed from the languages in the vicinity of Mt. Kenya.

551 to forget (-sahau)

1.	-rirwa	A_1	1-8
2.	-riganirwa	A_2	7-44
3.	-lwa	A_3	45-97
4.	-riganɪrʊɔ	A_4	98-105

The occurrence of /l/ suggests that the Kamba form *-lwa* is borrowed from the languages on the slopes of Mt. Kenya.

552 to think (-fikiri)

1.	-ðʊgania	A	1-16, 40-44
2.	-ɪciːrɨa	B_1	15, 17-39
3.	-ɪsilya	B_2	45, 47-54, 56-61, 63-68, 71, 92
4a.	-iciria	B_3	98-101, 103
4b.	-isiria	B_3	102, 104, 105

5.	-βindɪːʃa	C_1	69, 70, 72-91, 93-97
6.	-βundɪːʃa	C_2	62

The Kamba form B_2 is borrowed from Gikuyu. Both forms subsumed under B_3 are treated as identical (*C_1/_/i, u/ > /s/ in Murang'a, Ndia und Gichugu). They possibly go back to Swahili -*silia* 'to entrust something to somebody', which, in turn, is connected to the noun *silika* 'instinct, character'. The forms subsumed under C are borrowed from the Swahili word -*fundisha* 'to teach'.

553 to know (-jua)

1.	-mɛŋa	A_1	1-44c, 46, 62, 71, 72, 77-79, 81, 82, 84, 86, 98-105
2.	-maŋa	A_2	45, 47-61, 63-70, 73-76, 80, 83, 85, 87-96

Form A_1 is related to CB *-mèn̩ CS 1301, form A_2 is related to CB *-máni- C.S. 1284a. The latter is restricted to Kamba.

554 to hear (-sikia)

1.	-iːgwa	A_1	1-15
2.	-ɪːgwa	A_2	17-44
3.	-iᵍwa	A_3	45-97
4.	-igua	A_4	98-105

All forms are related to CB *-yi̩gu̩- C.S. 2043.

555 noise (kelele)

1.	kɪ.lɔnzɔ	A	47, 49, 50, 54, 56-58, 60-65, 67, 70-76, 80-83, 85-89, 92-95
2a.	i.nɛgɛnɛ	B_1	98-105
2b.	ɪ.nɛgɛnɛ	B_1	17-21, 29-39
3a.	kɪ.nɛɛnɛ	B_2	46, 48, 51, 69
3b.	kɪ.nɛgɛnɛ	B_2	13, 22-25, 28
4.	kɛlɛlɛ	C	50, 68, 77-79, 84, 90, 97
5.	w.aʃa	D	45, 52, 53, 55, 59, 66, 91
6.	kɪ.mɛngɛlɛ	E	96
7.	gɪ.tuma	F	1-12, 14-16, 26, 40-44

Form A, a loan of unknown origin, also occurs under the keyword *135 to make noise*. Form B also occurs under the keywords *160 quarrel / 161 to quarrel*. Both forms subsumed under B_1 are treated as identical (class 5 /i-/ in Gikuyu, Ndia, and Gichugu regularly corresponds to class 5 /ɪ-/ in the rest of Central Kenyan Bantu). The forms subsumed under B_2 are treated as identical as well (*G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). They are also attested with the meaning *160 quarrel*. Form C is a direct loan from Swahili, restricted to a few locations in Kamba.

556 to see (-ona)

1.	-ɔna	A	1-105

All of Central Kenyan Bantu uses the same form related to CB *-bón- C.S. 164.

557 to touch (-gusa)

1.	-tɔnga	A	1-26, 40-44
2.	-bʊrʊria	B	27-39
3.	-kwata	C	45-75, 77-80, 82-89, 91-97
4.	-kiita	D	76, 81, 90
5.	-ɦutia	E	98-105

Form C is related to CB *-kúát- C.S. 1172 and also occurs under the keyword *098 to seize*.

558 to taste (-onja)

1.	-cɛma	A_1	1-16
2a.	-cama	A_2	13, 14, 17-44, 98-101, 103
2b.	-sama	A_2	45-97, 102, 104, 105

Both forms subsumed under A_2 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, u/ > /s/ in Murang'a, Ndia, Gichugu, and Kamba). They are all, possibly, borrowed from Maasai (Möhlig 1974a: 181).

561 to die (-fa)

1.	-kua	A_1	1-47, 49-60, 74, 78, 92, 97-105
2.	-kwa	A_2	48, 61-73, 75-77, 79-91, 93-96

Both forms are related to CB *-kʉ́- C.S. 1249.

562 death (kifo)

1a.	gɪ.kuU	A_1	1-44, 99, 100, 102-105
1b.	kɪ.kuU	A_1	45-47, 49-55, 57-60, 92, 97
2a.	gɪ.kuɔ	A_2	98, 101
2b.	kɪ.kuɔ	A_2	56, 80-82
3.	kɪ.kwUU	A_3	48, 61, 63-72, 85, 87-91, 93, 94, 96
4.	kɪ.kwɔ	A_4	62, 73-79, 83, 84, 86, 95

All forms are related to CB *-kʉ́à C.S. 1252. The forms subsumed under A_1 and A_2 respectively are treated as identical (*K_3; Dahl's Law inactive in Kamba).

563 corpse (maiti)

1.	kɪ.imba	A_1	1-47, 58, 60, 98-105
2.	k.imba	A_2	48-57, 59, 61-97

Both forms are related to CB *-bɟ̀mbà C.S. 145.

564 to bury (-zika)

1.	-ðika	A	1-52, 54-90, 92, 95-105
2.	-ɛnzia	B_1	53
3.	-ɪnzɪa	B_2	91, 93, 94

Form A is connected to CB *-dɟ́k- C.S. 615. However, it is not regularly derived from CB (CB *d > /r/ in most of CKB), but rather a loan from Swahili, probably transmitted via Gikuyu. Form B also occurs under the keyword *267 to dig a hole*. The custom of burying the dead underground is a fairly recent practice in Central Kenya (Möhlig 1974a: 182), which explains the fact that no genuine concept is used. The activity of burying is rather expressed by either a Swahili loan or simply the word for *267 to dig a hole*.

565 grave (kaburi)

1a.	kaburi	A	1, 2, 6, 7, 13, 16a, 22-25, 32, 34, 35, 39
1b.	kabuli	A	45, 47, 48, 50-52, 56, 58, 65, 68, 92, 97
1c.	kaburi	A	98, 100, 104
2.	mbɪːrɪra	B_1	3-21, 26-29, 31, 33, 35-44
3a.	mbɪrɪra	B_2	101, 102, 105
3b.	mbɪɪa	B_2	62, 63, 65, 66, 70, 72-87, 89, 91

4.	ɪ.riŋa	C	3, 40
5.	kɪ.ðikɔ	D_1	30
6.	nðikɔ	D_2	39b, 44a
7.	ɪ.ðɪɪ	E	46, 49, 59, 60, 64, 67, 71
8.	mbʊa	F	53, 55, 57, 69, 87, 88, 90, 93-96

All forms subsumed under A are borrowed from Swahili. Its widespread usage in Kamba is due to vernacular teaching (Mwende 2006: 9). The forms subsumed under B are related to CB *-bíídà C.S. 111. Form C and the ones subsumed under D have the meaning *447 hole* (see also *564 to bury*). A similar word to form E also occurs under the keyword *440 land*.

566 God (Mungu)

1.	mʊ.rungu	A_1	1-15, 19a, 22-26
2.	mʊ.rʊngʊ	A_2	40-44
3.	ngai	B	14, 17-21, 27-40, 42c, 45-105
4.	mʊ.ʊmbi	C	16a, 16b

Form B is a Maasai loan (cf. *435 rain*). Form C is related to the verb *-ʊmba* 'create' (Möhlig 1974a: 182), which is also attested under the keywords *365 to mould*, *366 to carve*, and *367 to forge*.

567 ghost (pepo)

1.	kɪ.rundu	A	3-12, 20, 25, 26, 40-44
2.	ngɔma	B_1	31-39, 99
3.	ngɔmi	B_2	101
4.	ɪ.imʊ	C	46-63, 65, 66, 68-70, 72-74, 76-81, 83-97
5.	njini	D	98
6.	pɛpɔ	E	100
7.	saitan	F	102
8.	ma.rafiɔ	G	104, 105
9.	βɛβa	H	45, 64, 67, 71, 75, 82

Form C is related to CB *-dį́mu CS 619. The forms D, E, and F denote different spiritual concepts all borrowed from Swahili.

570 medicineman (mganga)

1.	mʊ.gaa	A_1	1-16, 22, 24
2.	mʊ.gɔɔ	A_2	17-21, 23, 25-39, 98, 99, 101-103, 105
3.	mʊ.gaɔ	A_3	40-44
4.	mʊ.ʊndʊ mʊɛ	B	45-97
5.	mʊ.ganga	C	104

Form C is an isolated Swahili loan in Ndia.

571 sorcerer (mchawi)

1a.	mʊ.rɔ:gi	A	1-44c, 98, 100-105
1b.	mʊ.ɔi	A	45-97
2.	mʊ.ndʊ mʊ.gɔɔ	B	99

Both forms subsumed under A are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). They both are related to the keyword *572 to bewitch*. They seem to originate from a Common Central Kenya Bantu Stratum. Form B also occurs under the keyword *570 medicineman*.

572 to bewitch (-roga)

1a.	-rɔga	A	1-44c, 98, 100-103, 105
1b.	-ɔa	A	45-97
2.	-rʊɦuɦɔ	B	99

Both forms subsumed under A are related to CB *-dòg- C.S. 644 and treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ and *G/_/a, ɛ, ɪ, ɔ, ʊ/ > /Ø/ in Kamba). They appear as nouns under the keyword *571 sorcerer*.

574 big (-kubwa)

1.	-nɛnɛ	A	1-105

All of Central Kenyan uses the same form related to CB *-nénè C.S. 1350.

575 small (-dogo)

1.	niːni	A_1	1-21, 40-97
2.	niiniː	A_2	22-39
3.	nini	A_3	98-105

All forms are related to CB *-nį̀ɲį́ C.S. 1362.

578 wide (-pana)

1.	-aːriɪ, mbaːriɪ	A	1-44, 98-105
2.	-aramʊ, mbaramʊ	B_1	40-44,
3a.	-aamu, mbaamu	B_2	62, 63, 65-86, 88-97
3b.	-aramu	B_2	103
4.	-ðanðau	C_1	45-61, 64
5.	-zanzau	C_2	87

Both forms subsumed under B_2 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba).

579 narrow (-embamba)

1a.	-cɛkɛ	A_1	1-39, 99-101
1b.	-sɛkɛ	A_1	105
2.	-cɛgɛ	A_2	40-44
3.	-ðɛkɛ	A_3	45-97
4.	njɛkɛ	A_4	102, 104
5.	-cɛkɛɦa	A_5	98, 103

Both forms subsumed under A_1 are treated as identical (*C_1/_/a, ɛ, ɪ, ɔ, ʊ/ > /s/ in Gichugu).

581 light (-epesi)

1.	-ʊðʊ, mbʊðʊ	A_1	1-16, 26-44
2.	-ʊðu, mbʊðu	A_2	17-25, 101, 102, 104, 105
3a.	-bʊðʊ	A_3	45-97
3b.	-ɦʊðʊ	A_3	103
4.	-ɦʊða	A_4	98
5.	-ɦʊtʊ	A_5	100

Both forms subsumed under A_3 are treated as identical (*P_1). The form A_3 also occurs under the keyword *587 soft*.

582 good (-ema)

1.	-ɛːga, njɛːga	A_1	1-12
2.	-ɛːga, mbɛːga	A_2	13-44
3.	-sɛɔ, nzɛɔ	A_3	45, 46, 48, 49, 51, 54-56, 58-97
4.	-sɛᴜ, nzɛᴜ	A_4	47, 50, 52, 53, 57
5.	-ɛga, njɛga	A_5	98-105

583 bad (-baya)

1.	-ðᴜːku	A_1	1-26, 40-44, 45-97
2.	-cᴜku	A_2	101
3.	-maɪ	B	27-30
4.	-ᴜru	C	98-100, 102-105

584 clean (-safi)

1a.	-ðɛru	A	1-44c, 98-105
1b.	-ðɛu	A	45-97

Both forms are related to CB *-céd- p.s. 85 and treated as identical (*R_1/_/a, ɛ, ɔ, ᴜ/ > /Ø/ in Kamba).

585 dirt (chafu)

1.	rᴜ.kɔ	A_1	1-13, 26, 40-44
2.	ɪ.kɔ, gɪ.kɔ	A_2	14-25, 27-39, 44b
3a.	kɪ.kɔ	A_3	45-97
3b.	gɪ.kɔ	A_3	98-105

All forms are related to CB *-kò C.S. 1093. Both form subsumed under A_3 are treated as identical (*K_3; Dahl's Law inactive in Kamba).

587 soft (-ororo)

1.	-ɔrɔ, mbɔrɔ	A_1	1-15
2a.	-ɔrɔrɔ, mbɔrɔrɔ	A_2	16-26, 102, 105
2b.	-ɔlɔlɔ, mbɔlɔlɔ	A_2	45-97
3.	-rɔrɔa	A_3	98
4.	-tᴜtu	B	27-39
5.	-iɲu, mbiɲu	C	40-44
6.	-ɦᴜðᴜ	D_1	100, 103
7.	-ɦᴜrᴜ	D_2	101

The occurrence of /l/ in Kamba suggests that form A_2 is a loan. The languages in the vicinity of Mt. Kenya as well as Swahili are possible donors of this item. The two forms subsumed under A_2 are treated as identical (*R_3). Form D_1 also occurs under the keyword *581 light*.

588 wisdom (hekima)

1.	gU:mɛ	A	1-15
2.	U:gɪ	B_1	7-39, 98-105
3.	U.gUgi	B_2	40-44
4.	w.UI	B_3	45-97

According to Möhlig (1974a: 185), form A is connected to the meaning 'sharp'. For all forms subsumed under B, borrowing is plausible based on formal aberrancies (ibid.).

589 stupidity (upumbavu)

1.	waa	A	1-25, 40-44
2.	U.ri:tu	B_1	7-39, 42c, 44b
3.	U.ritu	B_2	104
4.	U.rimU	C	31-34, 37, 38b, 98-105
5.	U.tumanu	D	45-54, 56-61, 64, 65, 67, 68, 71, 77-79, 82, 84, 95
6.	U.tundUu	E	55, 63, 65, 66, 69, 73, 85, 87-94
7.	U.taku	F	62, 72, 74, 75, 81, 86
8.	U.tia, ndia	G	70, 76, 83, 96, 97
9.	U.tulu	H	80

The forms subsumed under B and C also occur under the keyword *512 weight*. A connection to the meaning *063 sickness* can, however, not be ruled out (cf. Möhlig 1974a: 185). Form E might be connected to the meaning *004 hair*, possibly, a pars pro toto for 'head'. Form H is an isolated loan in Kamba of unknown origin.

590 black (-eusi)

1.	-iru, njiru	A_1	1-30
2.	-irU, mbirU	A_2	31-39
3a.	-irU, njirU	A_3	40-44, 99-101, 103-105
3b.	-iU, nziU	A_3	45-97
4.	-ira	A_4	98, 102

All forms are connected to CB *-yídù C.S. 2037. Both forms subsumed under A_3 are treated as identical (*R_1/_/a, ɛ, ɔ, U/ and *NJ).

591 red (-ekundu)

1.	-tu:nɛ	A	1-98, 100-102, 104, 105

This item seems to originate from a stratum common to all Central Kenya Bantu languages.

592 white (-eupe)

1a.	-ɛrU	A_1	1-12, 26-30, 98-105
1b.	-ɛU	A_1	45-97
2.	-ɛru	A_2	13-25
3.	-cɛrU	A_3	31-39
4.	-yɛru	A_4	40-44

All forms subsumed under A_1 are treated as identical (*R_1/_/a, ɛ, ɔ, U/ > /Ø/ in Kamba). The diversity of these forms indicates parallel borrowing from an unknown source (cf. Möhlig 1974a: 185).

593 fat (-nene)

1a.	-nɔru	A_1	1-44c, 99, 102
1b.	-nɔu	A_1	45-97
2.	-nɔra	A_2	98, 103
3.	-ugu	B	100
4.	-nɛnɛ	C	104

Both forms subsumed under A_1 are treated as identical (*R_1/_/a, ɛ, ɔ, ʊ/ > /Ø/ in Kamba). Form C is also attested under the keyword *574 big*.

594 sweetness (tamu)

1.	mʊ.rɪɔ	A_1	1-44c, 102, 104, 105
2.	mʊ.yɔ	A_2	45-97
3.	ðukari	B	99
4.	cama	C	98, 100, 101, 103

The two forms subsumed under A are possibly connected to the keyword *383 food*, going back to CB *-díó C.S. 554. Form B is a Swahili loan with the meaning 'sugar'. Form C also occurs under the keyword *558 to taste* and, possibly, go back to Maasai (cf. Möhlig 1974: 181).

596 coldness (baridi)

1.	MPIBʊ	A_1	1-16, 40-44
2.	MPɪBʊ	A_2	17-30
3a.	MPɛBɔ	A_3	31-39, 42-44, 48, 54, 57, 59, 60, 62, 63, 71-74, 76-82, 84, 86, 89, 91-95, 97, 104
3b.	ɦɛɦɔ	A_3	98, 100-103, 105
4.	kɪ.ɦʊ	A_4	99
5.	ʊ.ðiðu	B_1	46, 50, 52, 53, 58, 61, 64, 65, 67, 68-70, 75, 81, 82, 83, 85, 87, 88, 90, 96
6.	ʊ.ðitu	B_2	45, 47, 49, 51, 55, 56, 66

All forms subsumed under A possibly go back to CB *-pépò CS 1492; they are, however, connected irregularily. The two forms subsumed under A_3 are treated as identical (*MP_1).

598 sufficient (-tosha)

1.	-ŋanɪra, -ŋana	A	1-13
2.	-gana	B_1	14-16, 40-44
3.	-ɪ.gana	B_2	17-25
4.	-ɪːgana, -ɪ-gania, -ɪːganɪra	B_3	26-39, 101
5.	-ɪ(y)an-	B_4	47, 52, 63-65
6.	-ɪ(y)anɪ-	B_5	45, 46, 48-51, 53-62, 66-68, 70-73, 75-82, 84, 85, 86, 88, 89
7.	-iganɪra	B_6	98, 100, 103, 104
8.	-inagɪnɪra	B_7	102
9.	-i.gana	B_8	98, 99
10.	-anɪ-	B_9	74, 83, 87, 90-97
11.	-tɔʃa	C	69

All forms subsumed under B are possibly related to the meaning *510 one hundred*. The words appear in applicative as well as causative usage. The two Kamba forms B_4 and B_5 are loanwords. The relatively high diversity of the items above may be due to little usage of this concept. Form C is an isolated Swahili loan.

599 to be suitable (-faa)

1.	-bwira	A_1	1-16, 26, 40-44
2.	-bua	A_2	17-25
3.	-ɪːganɪrɪra	B_1	27-30
4.	-igana	B_2	98
5.	-iganɪra	B_3	103, 105
6.	-ɪanɪwa	B_4	48, 49, 61, 67, 69, 73, 76-80, 95
7.	-ɪanɪu	B_5	64
8.	-ɪyanɪa	B_6	52
9.	-anɪwa	B_7	83, 91, 96
10.	-aːgɪrɪrwa	C_1	31-39
11.	-agɪrɪru	C_2	99
12.	-agɪrɪra	C_3	100-102
13.	-ðɔngama	D	40-44
14.	-aɪlwa	E_1	46, 54, 55, 59, 62, 72, 82, 86, 87, 89, 90, 93
15.	-aɪlU	E_2	63, 66, 92
16.	-aɪlɛ	E_3	65, 70, 71, 81, 88, 94
17.	-aɪlila	E_4	84
18.	-sɛUba	F_1	51, 60
19.	-sɛU	F_2	45, 47, 50, 52, 58
20	-sɛɔ	F_3	57, 85

This concepts seems to be of little usage in the Central Kenya Bantu languages, hence, the relatively high diversity. All forms subsumed under B are connected to the meaning *598 to be sufficient*. All forms subsumed under E are loanwords in Kamba, as the occurrence of /l/ suggests. They go back to the forms subsumed under C, which prevail in Embu, Mbeere, and some Gikuyu dialects. The forms subsumed under F are connected to the meaning *582 good*.

A

B

C

cat	291
cattle	278
cave	446
chair	243
charcoal	214
chase away,to	168
cheap	379
cheek	007
chest	032
chicken	289
child	121
chin	009
churn, to	284
clean	584
clothing	409
cloud	434
cock	290
cold	596
come from, to	083
come, to	084
command, to	184
cook, to	221
cooking-stones	220
corpse	563
cough, to	068
count, to	481
cover, to	234
cow	282
crocodile	328
crowd	476
cry, to	137
cultivate, to	266
cure, to	075
curse, to	172
cut, to	236

D

E

F

guinea fowl	346
H	
hair	004
hammer	249
hang up, to	261
harvest,to	272
hat	413
hate / despise, to	536
head	002
hear, to	554
heart	045
heat	429
heel	038
help, to	147
herd, to	280
hide	039b
hide, to	171
hit / strike, to	164
hoe	268
hole	447
honey	390
horn	313
house	197
house fly	338
hunger	381
hunt, to	293
hunter	294
husband	113
hyena	319
I	
insult, to	173
intestines	044
iron	368
iron, to	417
J	

K

L

liver	048
lizard	331
load	275
look at, to	154
louse	341
love, to	117
lungs	046

M

maize	406
make noise, to	135
mango fruit	397
many	475
market	372
marriage	111
marry, to	112
mat	244
matchet	250
measure, to	511
medicine	076
medicine man	570
mercy	537
metal cooking pot	225
milk, to	283
millet	407
mirror	258
mix, to	233
money	378
moon	430
morning	528
mortar	240
mosquito	339
mother (my)	116
mould, to	365
mountain	442
mouth	015

slap, to	162
sleep, to	056
small	575
smash, to	237
smell	548
smoke	215
snail	332
snake	330
sneeze, to	054
snore, to	059
soft	587
soil (clay)	455
soldier ant	336
sorcerer	571
sorrow	543
speak, to	139
spear	299
spider	340
split (firewood), to	262
sprout, to	461
squat, to	090
stand, to	088
star	431
steal, to	169
stink, to	549
stock (of grain)	276
stockings	418
stone	451
strain, to	231
stupidity	589
sufficient, to be	598
sugarcane	396
suitable, to be	599
sun	426
swallow, to	384
sweat	051

T

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